SD Times

● SOFTWARE DEVELOPMENT

The Industry Newspaper for Software Development Managers

AAA
Connecticut Motor Club

$7.95   www.sdtimes.com

A BZ MEDIA PUBLICATION

---

eXcelon, CSI Form XML Alliance
Companies to integrate XML servers

BY ALAN ZEICHICK

eXcelon Corp. formerly known as Object Design Inc., and CSI USA, the New York-based subsidiary of the Italian firm Communication Services International, have agreed to integrate the eXcelon XML application development environment and application server, with CSI's Business Document Exchange (BDE) server software.

The XML-based eXcelon server enables companies to exchange both structured data, such as customer addresses in a database, and semistructured data. BDE's role is to add encryption, tracking and notification features to the data flowing in and out of the eXcelon server.

"As XML becomes the language of choice for running e-business applications, the need for providing a secure way to exchange XML data via the Internet is crucial," said Maurizio Balestrieri, president of CSI (www.csiusa.net). "Partnering with Object Design and interfacing with eXcelon enables us to expand our customer base by offering that security component to the growing number of companies that are building applications using XML."

"Security is a major topic of concern for companies that conduct business over the Internet," said Larry Alston, vice president of marketing at eXcelon (www.exceloncorp.com). "A successful e-business is one that can seamlessly transmit data to and from its partners and customers in a confidential, reliable way. Through this partnership with CSI, we are now able to offer our eXcelon customers that same ability to securely exchange e-business data with other XML-based businesses."

eXcelon is also known for its Enterprise JavaBeans server, called Javlin. In early December 1999, the company

The CSI alliance makes business transactions more secure, said eXcelon's Larry Alston.

COMPUWARE PUTS NEW FACE ON UNIFACE

Compuware Corp. has announced Uniface JTi, a Java thin-client interface for applications running on the company's Uniface WebApplication server. JTi installs onto any personal computer with a Java Virtual Machine (JVM) installed, and allows users to launch any Uniface 7 client/server application to which they have access. Previously, developers needed to build and deploy custom desktop clients for end-user access to Uniface client/server applications.

According to Compuware (www.compuware.com), JTi enables large or dispersed organizations to manage their Uniface applications centrally because there is no software distribution to individual clients. Only the presentation manager, which has low memory and bandwidth requirements, is required on the client, making high performance over low-bandwidth connections possible. Because all data is stored centrally, the inherent risk of keeping sensitive information on disparate client desktops is removed.

At run time, end users have the choice of loading JTi as a self-installable Java applet or as a browser plug-in. Once JTi is installed, users log on to the JTi and are authenticated by Uniface WebApplications Server, from which they can launch any Uniface 7 client/server application to which they have access.

"The development and deployment of complex e-commerce applications requires tailored solutions to meet individ-

---

SUN TARGETS INTERNET APPLIANCES WITH J2ME

BY EDWARD J. CORREIA

Edging closer to its vision of Java running on every device in creation, Sun Microsystems Inc. has released Java 2 Micro Edition (J2ME), an optimized Java run-time environment targeted at applications and embedded systems developers for consumer-oriented data appliances. The high-volume consumer market currently includes devices such as cellular phones, PDAs, auto navigation systems, pagers and set-top boxes, but soon could expand to include appliances of all kinds.

In general, the Java environment simplifies programming by removing the programmer from the complexities of device driver development while providing a common execution environment across many hardware platforms. The benefit of J2ME is that device manufacturers—or their service-providing customers—can write a single set of applications that cater to any Java-compatible device regardless of brand. For example, a Web site could service the e-mail traffic of any cell phone regardless of hardware brand. Such value-added services not only increase potential service revenue, but may help to reduce customer turnover, said Bob Tennant, group manager for Java 2 Micro Edition at Sun.

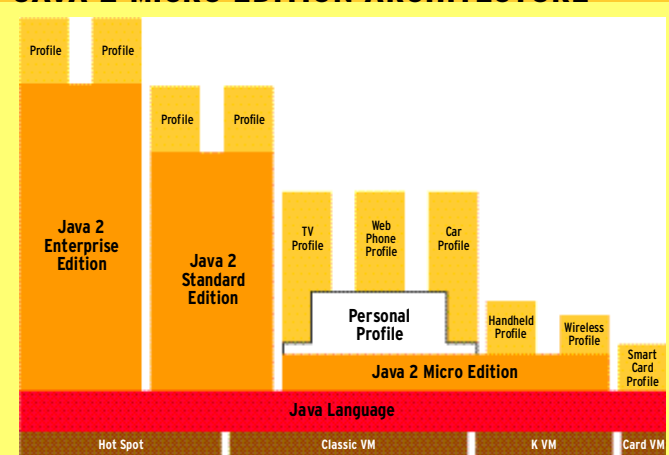The way J2ME works is relatively simple. Sun provides developers with profiles, or sets of prewritten code, for targeted devices with attributes in common. For instance, Sun provides a profile for mobile information devices, such as pagers, cell phones and the like. These handheld devices have simple displays and limited available power. The environment also runs a Java Virtual Machine and provides space to run programs.

Minimum hardware requirements for running J2ME applications include a processor and operating system, plus 256 KB of available memory. The ability to avoid hardware dependence and the diversity in product types, memory capabilities and power requirements mean more code portability for Java developers.

The advantages of developing solutions with Java—because of its processor and operating system independence—have become apparent to programmers and manufacturers of Java-enabled devices. Sun has released the small-footprint environment in response to

JAVA 2 MICRO EDITION ARCHITECTURE

Profile
Profile
Profile
Profile

Java 2 Enterprise Edition

Java 2 Standard Edition

TV Profile
Web Phone Profile
Car Profile

Personal Profile
Handheld Profile
Wireless Profile

Java 2 Micro Edition
Smart Card Profile

Java Language

Hot Spot   Classic VM   K VM   Card VM

"So the challenge here was knowing the speed of how quickly we had to bring shoe vendors online."

"We went from 6 to 10 to 20 vendors and we're continuing down that road."

"So how do we rapidly do the development to make all this happen?"

**"Tools like Microsoft Visual InterDev and
Visual Basic, laid on top of Windows DNA, allowed
us to bring this site to market quickly."**

Built on the Microsoft® Windows® DNA platform using:

Visual Studio® 6.0

Windows NT® Server 4.0

SQL Server™ 7.0

Site Server 3.0, Commerce Edition

Also used:

Smith-Gardner MACS

Taxware Internet Tax System

To find out how Chris and his team built
NORDSTROMshoes.com, go to: **www.SHOEstory.com**

Microsoft®

Where do you want to go today?®

How to solve a $50,000 problem for $2,000.

TURBOLINUX
TURBOCLUSTER SERVER
4.0
HIGH PERFORMANCE LINUX

Maybe you don't have the huge budget to integrate all your e-commerce applications
with a proprietary solution. Sometimes a severe limitation opens up a whole new way of doing things.
Today, more and more forward-thinking IT managers are solving the high cost of integration with TurboLinux.
Our TurboCluster Server in the web farm can seamlessly put Solaris, NT, or Linux servers to common purpose.

The accomplishments of TurboLinux have not gone unnoticed.
TurboCluster Server won the 1999 Linux Journal Editor's Choice Award for Top Web Solution.

Of course, TurboCluster Server is only part of the story.
The same great engineering goes into our new Workstation and Server 6.0 products.
We're happy to be able to leave you with this reassuring thought: build on what you have.

Check out our website at www.turbolinux.com or call us toll-free at (877)-4TURBOLINUX.

TURBOLINUX
HIGH PERFORMANCE LINUX

BEA, Warburg Pincus Move Toward E-Commerce

BY DAVID RUBINSTEIN

The recent acquisition of the Visual Café development environment by the company created in the wake of a joint venture between BEA Systems Inc., and the investment firm Warburg, Pincus Venture Partners marks the combined entity's move toward providing end-to-end e-commerce solutions.

"We want to make sure there is a kick-ass set of tools for Java development," said Joe Menard, president of BEA's e-commerce server division. "Visual Café is an excellent IDE [integrated development environment], but more needs to be added for Java component-based e-commerce applications."

For now, at least, customers using Visual Café will continue to receive support from Symantec Corp., which completed the sale for $75 million.

"There is a specific timetable for turning things over [to the new company]," said Menard. "Customers can continue to count on support."

According to Menard, there has been an increase in demand for BEA's WebLogic application server, and customers increasingly have been asking to build e-commerce applications quickly. The options have been to buy applications out of the bag, load them and go into production. But one of the new dynamics of e-commerce is that each company's interface has to be unique.

Last year, BEA (www.bea.com) acquired Boston-based The Theory Center for $100 million. The Theory Center made applications compliant with the Enterprise JavaBeans specification.

"The time had come that we should jumpstart end-to-end tools around Java," Menard said, adding that the BEA-Warburg Pincus company is capitalized for further acquisitions and development. Visual Café also had strong brand recognition, which was important to the fledgling company, Menard said. "We set it up as an independent company because the industry is at a point where there is a surge around Java as a programming model."

The new company has not yet decided upon a name, and announcements regarding corporate officers and product rollouts should be coming in the next one to three months, Menard said.

Menard indicated that Visual Café will continue to be available as a stand-alone tool kit, and that the new company will bring in people from Symantec who have worked with Visual Café.

As for Symantec (www.symantec.com), the selling off of the Visual Café tool kit, as well as its recent sale of the Act database, are part of the company's new strategic direction toward Internet security.

"We're looking to expand into e-support," said Elizabeth Magliana, vice president of product management in the enterprise solutions division. "With PC Anywhere products, we can help companies support mobile work forces, and now we can assist helpdesks to do their job."

Act and Visual Café were profitable, according to Magliana, who explained that Symantec is trying to focus its technology and leverage its core competencies. "Act and Internet tools were not leverageable," she said. "We need to evolve these other technologies" to allow the company to grow into the ever-widening e-commerce areas.

"It wasn't about being squeezed" out of the ISV picture, Magliana said, but rather "it was about making tough decisions. We've invested a lot in this and will look to continue to invest" time and resources to move the company toward Internet security. "We're expanding beyond anti-virus, and beyond a Wintel environment, across multiple platforms, into better mobile code protection, with a broad content security portfolio," she said.

In December 1999, Symantec launched Norton Internet Security, which delivers a comprehensive set of security technologies, including a personal firewall combined with virus protection and URL filtering.

It seems to be a winning strategy for Symantec, which recently announced record revenues of $201 million for the third fiscal 2000 quarter, an increase of 29 percent over the same quarter a year ago. The product sell-off resulted in a one-time earnings-per-share increase of 91 cents. Earnings per share after one-time charges, amortization of goodwill and including the impact of the divestiture was $1.41.

BEA CHANGES MANAGEMENT TEAM

Steve Brown, BEA's chief financial officer since 1996, has been promoted to the newly created position of executive vice president of business planning and development. Also, William Klein, former vice president and CFO for Hewlett-Packard Co.'s Inkjet Imaging Solutions division, has been appointed to fill Brown's old post. ∎

BEA will add e-commerce components to Visual Caf , said Joe Menard.

Solaris 8 Hits the Streets

SUN PITCHES OPERATING SYSTEM'S SCALABILITY, BINARY COMPATIBILITY

BY ALAN ZEICHICK

Given Scott McNealy's penchant for tweaking Bill Gates, it should be no surprise that Sun Microsystems Inc. ensured that the release of its flagship operating system, Solaris 8, preceded general availability of Microsoft Corp.'s flagship operating system, Windows 2000. We talked to Tom Goguen, Sun's group manager for Solaris software, about the latest update, which shipped on Jan. 26. The prerelease code had been available for some time, through an early access program.

SD Times: Say I'm in charge of applications development for The Gap or XYZ Software. Why Solaris 8?
Tom Goguen: I'd like to answer that as why Solaris, and why Sun, and then talk about why Solaris 8.
Is "Why Solaris" and "Why Sun" one question or two?
Generally, one question. If you're a developer, and you want to deploy an application, in general you're looking for architectural continuity. If you've written an application for Solaris 2.6, and in reality for 2.5.1 or even Solaris 2.4, that application will in all likelihood run on Solaris 8 with no changes, no recompiling or anything. If you looked at what some of our competitors are doing, with every major release—including one that's coming up in February—it requires a complete rework of your application if you're going to maintain current functionality, as well as take advantage of new functionality that's going to be released.

I gather you're talking about Windows 2000. But a lot of Windows NT 4 applications will run just fine under Windows 2000. Sure, they can't take advantage of new features, but that must be true with Solaris 8 as well. A Solaris 2.6 app that's running under Solaris 8 must think that it's running under 2.6, doesn't it?
Not quite. Our overall architecture is such that when we release a new feature, we hide it under the covers of our application binary interfaces. Consider scalability. If you design your application well, with threads, it will run almost 64 times as fast on a 64-way system. You don't have to change that application—just write it for Solaris. If you want to take advantage of domaining, which is a feature of Starfires [64-way Sun Enterprise 10000 servers], where we run multiple instances of Solaris, you can run the same application written for an Enterprise 250, a single CPU machine—you don't have to change it.
Is it Solaris which takes care of that, or your C compiler which builds the threads?
You don't have to thread your application and then call a specific API to take advantage of dynamic reconfiguration. You don't have to think about that. Solaris takes advantage of that. You don't have to rewrite your application. Another example: Solaris 8 comes with resource management software. If you want your application to be controlled by the resource manager, it's not like we developed a different set of APIs that you have to write to. All this magic is hidden beneath the interface layer, hidden down in the operating system.

Why should I build a new application under Solaris, or deploy a new system?
Solaris 8 is the second generation of our 64-bit technology [which launched under Solaris 7]. If you want to build high-powered, highly scalable apps, you get the advantage of 64-bit. **Of course, that's 64-bit under Sparc, but 32-bit under Intel, until Itanium ships.**
We did announce that Solaris is up and running under the Itanium chip last fall. From an operating system perspective, another "Why Sun" reason is that Sun is entirely committed to Solaris and to Unix. No other vendor in the world has the singular commitment to their platform that we do.
I would think that Microsoft is committed to their platforms!

They have Windows 95, Windows 98, Windows NT 4 and now Windows 2000. It's challenging for them to balance them: They actually do have multiple operating systems.
You do too, if you call Java OS an operating system.
Well, yes, that's very very different. The targets are very different: Java OS is targeted at the low-end embedded space, which isn't a target for Solaris.
What about third-party tool support for Solaris? Many development managers look for a wide variety of tools. Is the community of tool providers growing?
The short answer is, yes. For example, InstallShield's new InstallShield Java Edition 3.0 has a port to Solaris in it. And that's not just for Java applications, but also for native Solaris applications. If you want to build an application and have it installed on Solaris as easily as it installs under Windows, you can do that now. We've also done work with Solaris 8 to register software apps as they're installed for deinstallation, so that we can uninstall software applications, not just packages.
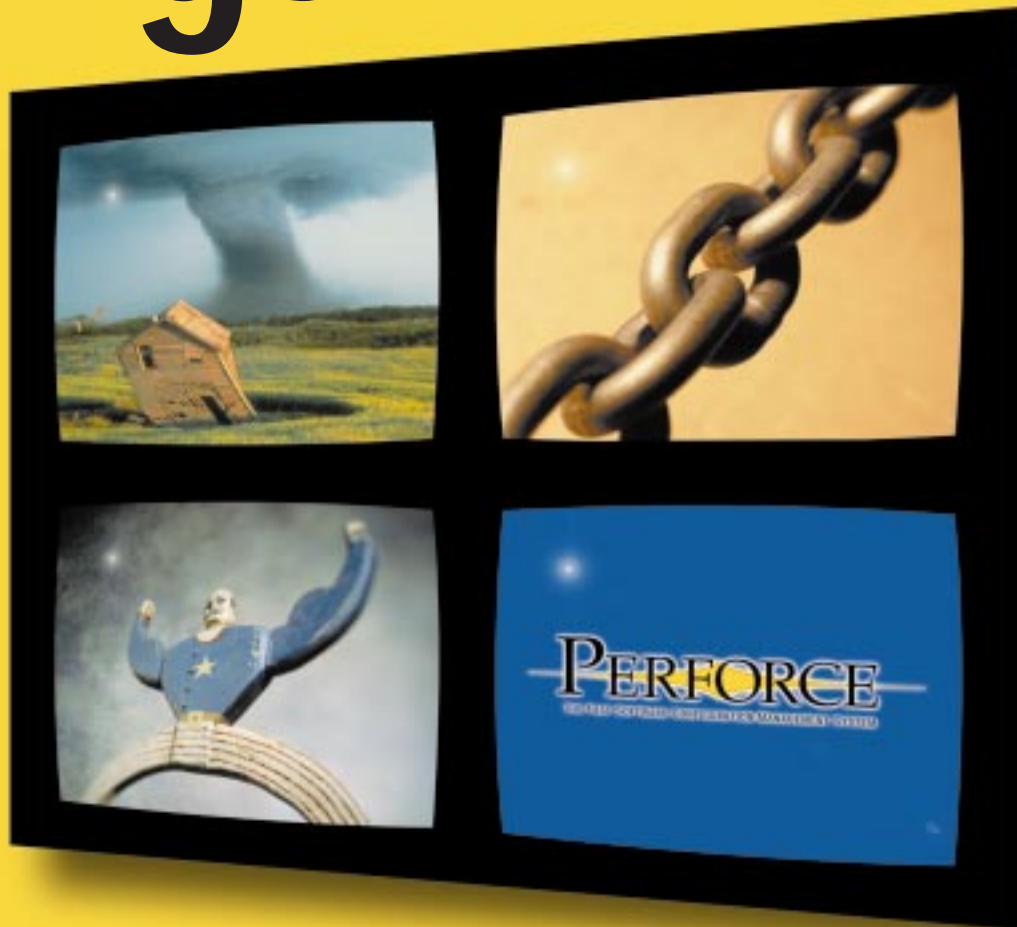
For Sun's Tom Goguen, the message is scalability.

TOWER TO RELEASE IMPROVED JAVA VIRTUAL MACHINE

Combines compilation, bytecode interpretation to speed performance

Tower Technology Corp. has announced a new version of its Java deployment application, TowerJ. According to the company, TowerJ 3.5 entered beta test in December 1999 and should be generally available in the first quarter of 2000.

TowerJ is a server-side Java Virtual Machine (JVM) that selectively compiles Java bytecode into binary native executables using post-compilation. These executables can be deployed and dynamically extended via native libraries or bytecode. Other portions of the Java code can be left as bytecode to be dynamically interpreted by the JVM.

The new release, TowerJ 3.5, is expected to add support for Sun Microsystems Inc.'s Java 2 specification, as well as enhanced support for servlets, Enterprise JavaBeans and Java Server Pages. According to Madison Cloutier, COO and vice president of marketing at Tower (www.twr.com), Java server applications built on application servers and servlet engines, such as Bluestone Consulting Inc.'s Sapphire, BEA Systems Inc.'s WebLogic, IBM Corp.'s Web-Sphere and Allaire Corp.'s JRun, will receive a substantial performance boost from TowerJ 3.5.

TowerJ 3.5 will run on HP-UX, Solaris, Compaq Tru64 Unix for Alpha, Windows NT for both Intel and Alpha, PowerPCs and Linux. Pricing for the new version had not yet been set by press time, but TowerJ 3.1 commercial starter kits are priced at $5,000.

According to a *Volano Report* study, published December 1999 (www.volano.com/report.html), TowerJ version 3.1.4 on Linux performed faster than IBM Corp.'s JDK 1.1.8, Microsoft Corp.'s VM for Windows NT/2000 and Sun's HotSpot Server 2.0. The VolanoMark 2.1.2 benchmark measures a JVM's throughput in messages per second.

The report noted that of the 17 products tested, TowerJ is the only one not distributed free of charge.
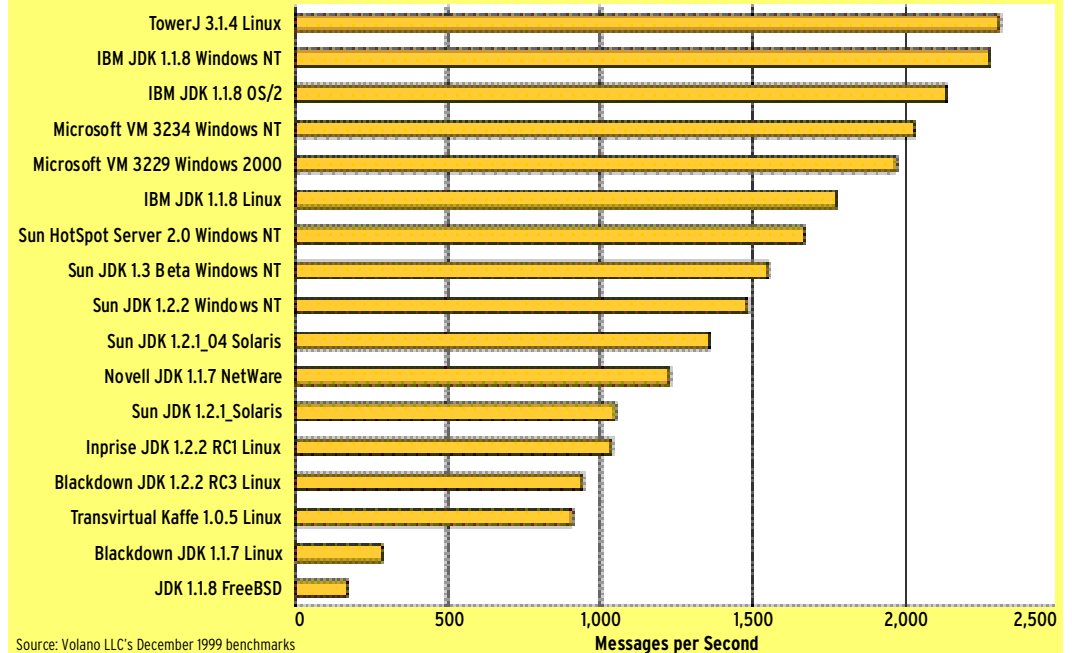
"TowerJ continues to impress me," stated John Neffenger, founder and CTO of Seattle-based Volano LLC and author of *Volano Report.* "Not only does it continue to top the performance scale, but TowerJ version 3 is the first Java deployment solution I've tested to break way past the 1,000-connection barrier on Linux. That's really an important milestone for us. The performance and mix-mode capabilities of TowerJ make it an attractive solution for deploying servlet-based applications."

"We are delighted with the results of the latest *Volano Report,*" said Tower's Cloutier. "A number of companies claim to have the fastest Java deployment solutions based on their own in-house benchmark tests, but independent benchmarks are a better indication of what end users can expect. Anybody can tweak in-house benchmarks tests to make their product look the best." ∎

JVMS COMPARED

JVM	Messages per Second
TowerJ 3.1.4 Linux	~2,350
IBM JDK 1.1.8 Windows NT	~2,300
IBM JDK 1.1.8 OS/2	~2,150
Microsoft VM 3234 Windows NT	~2,050
Microsoft VM 3229 Windows 2000	~1,950
IBM JDK 1.1.8 Linux	~1,750
Sun HotSpot Server 2.0 Windows NT	~1,650
Sun JDK 1.3 Beta Windows NT	~1,550
Sun JDK 1.2.2 Windows NT	~1,450
Sun JDK 1.2.1_04 Solaris	~1,300
Novell JDK 1.1.7 NetWare	~1,200
Sun JDK 1.2.1 Solaris	~1,050
Inprise JDK 1.2.2 RC1 Linux	~1,000
Blackdown JDK 1.2.2 RC3 Linux	~900
Transvirtual Kaffe 1.0.5 Linux	~850
Blackdown JDK 1.1.7 Linux	~250
JDK 1.1.8 FreeBSD	~150

Source: Volano LLC's December 1999 benchmarks

Stoll, McConnell to Keynote SD2000

Software developers and managers will be shown a glimpse of the future of software and applications development, including writing for handheld devices, at the upcoming SD2000 Conference and Expo, to be held March 19–24 at the San Jose, Calif., Convention Center. The theme of this year's conference is "Leading Developers into the Internet Age," with a subtheme of "The Future of Development Is in the Palm of Your Hand."

With enterprise developers increasingly being asked to do more faster and correctly the first time, SD2000 will offer a series of conferences and special events to help developers get up to speed. More than 8,000 attendees are expected.

"Business resources are going to be more freed up in 2000 to get back to the job of moving businesses forward instead of working on Y2K problems," said Marco Pardi, show director. "This is the place they'll learn how to do that."

Much of the conference will be dedicated to helping developers and managers adapt to the rapidly changing world, as Web-centric solutions replace the client/server relationship, businesses race to become e-businesses while still being able to do business, and a wide array of new, daunting technologies take center stage.

This year, SD2000 is adding an Open Source Pavilion, said Pardi, in response to the growing number of developers and managers using the Linux platform. Also, many "after-hours" roundtable discussions and "birds of a feather" talks are being added on such topics as the business and benefits of open source, how to improve upon the 80 percent failure rate in software development, and XML's role in e-commerce.

"For a lot of small companies that are Linux-based, [the Open Source Pavilion] is a turnkey solution for them," said Jo-Ann Pellegrini, national sales manager for CMP Media, which hosts the show. "They can send in a local person with a laptop and talk to customers."

The event boasts five keynote speakers. Two are labeled as "visionary keynotes": Clifford Stoll, author of "The Cuckoo's Egg" and "Silicon Snake Oil," will provide a skeptical view of computing; while Steve McConnell, chief engineer at Construx Software Builders Inc. and author of "After the Gold Rush," will address 10 myths of rapid software development.

MORE KEYNOTES
SD2000's other keynotes are Randal Schwartz on "Reducing Business Risk Using Perl," Bjarne Stroustrup on "Standard C++: A New Language for a New Millennium," and Guido van Rossum on Python as a general-purpose programming language.

In addition to the discussions and forums, there will be three hands-on design clinics offered. The first, called the XML Design Clinic, features Elliotte Rusty Harold and Simon St. Laurent and will be held Wednesday from 12:30 p.m.–2 p.m. Harold is a respected writer, programmer and educator, and St. Laurent is an XML consultant, author, Web developer and network administrator.

A Java Design Clinic will be offered Thursday from 12:30 p.m.–2 p.m. and features Bruce Eckel and Larry O'Brien. Eckel is the author of several books on programming, including "Thinking in Java," and O'Brien, former editor-in-chief of *Software Development* magazine, is now executive director of engineering at iMind Education Systems, where he was the principal architect of iMind's EJB-based enterprise solution for K–12 school districts.

A C++ Design Clinic featuring Dan Saks and Eckel will be held Friday from 11:30 a.m.–1 p.m. Saks is president of Saks & Associates, a C++ training and consulting company.

Not all of the sessions at SD2000 are presented by impartial experts. For example, "VMware: A New Tool for Developers," presented at 10 a.m. on Thursday, is taught by Darryl Ramm, director of technical marketing at VMware. ∎

SD2000 www.sdexpo.com

Conference: March 19-24; Expo: March 22-24, San Jose Convention Center, San Jose, Calif.

KEYNOTES:
"Reducing Business Risk Using Perl,"
   Randal Schwartz, Monday, 6 p.m.
"CP4E: Computer Programming for Everybody,"
   Guido van Rossum, Tuesday, 4 p.m.
"Standard C++: A New Language for a New Millennium,"
   Bjarne Stroustrup, Wednesday, 10 a.m.
"A Skeptical View of Computing,"
   Clifford Stoll, Wednesday, 7 p.m.
"10 Myths of Rapid Development,"
   Steve McConnell, Friday, 10 a.m.

CONFERENCE HOURS:
Sunday, 8:30 a.m.-5:30 p.m.
Monday, 8 a.m.-6 p.m.
Tuesday, 8 a.m.-6 p.m.
Wednesday, 8 a.m.-5:30 p.m.
Thursday, 8 a.m.-5:30 p.m.
Friday, 8 a.m.-4:30 p.m.

EXPO HOURS:
Wednesday, 3 p.m.-6 p.m.
Thursday, 11 a.m.-5 p.m.
Friday, 11 a.m.-2 p.m.

Corel, Inprise Agree to Merger Plan, Target Linux Market

$2.44 billion transaction will create a company that can offer applications and tools for growing OS

**BY DAVID RUBINSTEIN
AND EDWARD J. CORREIA**

Corel Corp. and Inprise Corp. announced they have entered into a definitive merger agreement that they hope will make the new company a leader in the charge toward widespread acceptance of the Linux operating system.

The new company will retain the Corel name and will become a source for end-to-end solutions featuring a broad range of productivity applications, development tools and professional services for all major platforms. Inprise will operate as a wholly owned subsidiary. Dr. Michael Cowpland will remain as president, CEO and a director of the corporation. Dale Fuller, Inprise's interim president and CEO, will be appointed as chairman of Corel's board of directors. The operations of the new company will be headquartered in Ottawa, with the Inprise operation remaining in its current Scotts Valley location.

"With Inprise's leadership in the software development community and Corel's Linux desktop operating system and productivity applications, we have an extraordinary opportunity to reach all facets of the exploding Linux market," said Cowpland. "This merger enables us to offer end-to-end product solutions and global support to all of our shared customers."

The value of the transaction is $2.44 billion. In 1999, the two companies had total revenue of $418 million. Under terms of the agreement, Inprise shareholders will receive 0.747 shares of Corel common stock for each share of Inprise common stock held. As a result of the merger, Corel expects to issue approximately 53.7 million common shares, in exchange for Inprise's outstanding shares. Based on the closing price of $20 per share of Corel as of Feb. 4, this represents a value of $14.94 per share of Inprise. The merger transaction is expected to close in late spring.

"This is about responding to and leading the rapidly changing face of computing," said Fuller. "…Our technologies will enable our customers to migrate to Linux faster."

The road to this point, though, hasn't always been smooth for Inprise. As recently as mid-1999, Inprise's stock was wallowing at around 3, after being in steady decline since February 1996's high of 19. Within the industry, questions arose as to whether Inprise would be able to keep pace with the rapid evolution of Internet and e-business technologies.

But Corel (www.corel.com) has made the move into Linux, with the release of WordPerfect 8 and by developing the first Linux operating system built specifically for the desktop. And, Inprise began to show signs that it was moving forward with the release of several new products.

Scheduled for release at the end of this month is Borland JBuilder 3 for Windows NT, Solaris and Linux. Now built completely in Java, and compliant with Java 2, JBuilder 3 will be available in standard, professional and enterprise editions for these platforms. This will be offered as a free download, as will a Linux just-in-time compiler.

With a Java Development Kit co-developed with Sun Microsystems Inc. for Linux, the development environment is guaranteed to be compatible with Sun's just-in-time compiler, which was built and donated by Inprise. Inprise, in fact, had been among the first to provide tools for Linux, first in 1998 with a commercial database around which developers could build applications. In July 1999, the company released VisiBroker for Linux, and JBuilder followed soon after.

In response to high demand for native development tools for Linux, Inprise is working on versions of its C++ and Delphi environments, expected to be released in midyear, which will support multiple distributions of Linux in a single product distribution. Inprise hopes to bring its development tools for Linux—code-named Kylix—up to the level of availability and usability of Windows. Kylix, planned to be one of the first rapid-application development tools for the Linux platform, is scheduled to be available in the middle of this year.

Also scheduled for release late this month is an upgrade of one of its mainstay products, C++ Builder 5, which will incorporate WebConnection, a host of new Internet features to help developers create Web-enabled applications. Through a series of objects, buttons and wizards, programmers can add Internet modules and communicate directly with Winsock, for example. Object properties can be edited as with any other object. C++ Builder 5 also will integrate with XML to simplify data distribution and exchange, and offer support for Active Server Objects, the objects used by Microsoft's Active Server Pages.

In addition, Inprise (www.inprise.com) is developing a native Linux version of its visual component library. ∎

Neon Jumps on the Linux Train

Linux support for Direct Shadow allows System/390 access via JDBC

Linux meets mainframe, as Neon Systems Inc. now offers Linux support for its *n*-tier host-access software, Shadow Direct.

Shadow Direct consists of two primary components: a client or midtier server driver known as the Shadow Direct Client; and a System/390-based server, known as the Shadow Server, which runs under MVS.

The Shadow Server provides an interface to host applications, such as DB2, IMS or VSAM data files. The Shadow Direct Client connects to the Shadow Server via TCP/IP, providing host access to application server software running on that midtier server.

With its latest version, Shadow Direct 4.5 now supports Linux as a server operating system for the midtier server. The Linux version of Shadow Direct is available for download from the Neon Systems Web site (www.neosys.com) for licensed customers. Other platforms for the Shadow Direct client include 16-bit and 32-bit Windows, OS/2 Warp, Unix and Macintosh.

"We believe that Linux is gaining widespread acceptance in the industry, and we see growing usage in our customer base," said Joe Backer, president and CEO of Neon Systems.

"Linux application developers can now develop applications with direct access to System/390 DB2, IMS, CICS, ADABAS and VSAM data and transactions using point-and-click tools without mainframe expertise, coding or gateways," added Backer.

Recently, Neon Systems also announced it had certified Pervasive Software Inc.'s (www.pervasive.com) Pervasive Tango 2000 Development Studio, a visual programming environment available for designing, building and testing Web applications, as compatible with Shadow Direct. The company also secured distribution and source-code rights to Sterling Software's Solve Diplomat EAI package for $3.5 million. ∎

SHADOW DIRECT SERVER ON OS/390
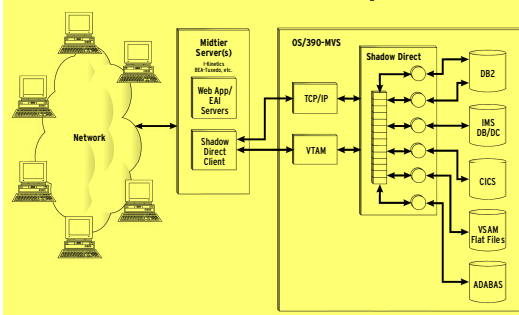
Initial Test in LPI's Linux Certification Series Hits Market

The first exam in the Linux Professional Institute's Linux certification program has been made available, according to LPI executive director Evan Leibovitch. The exam, which covers Linux basics as part of the program's first level, can be taken at test centers around the world affiliated with Virtual University Enterprises.

"We want an exam that is challenging, one that serves the basic purpose of separating those who understand the fundamentals from those who don't," said Scott Murray, LPI's director of exam development. "We want to provide a certification that is supported and respected by its community."

Toronto-based LPI (www.lpi.org) is a community project to develop professional certification for the Linux operating system.

"It started as a grassroots effort that got sponsorship in the Linux community," said Leibovitch. "A very significant difference from other certification programs is that this is a community project. We have sponsorship and volunteers from within the Linux community working on this. One of Microsoft's selling points is that it says there are thousands of Microsoft-certified engineers. There are probably more qualified Linux people out there. This way, we get a chance to validate that," he said.

The exam, the first of three that candidates must pass in order to attain the LPI's first level of certification, tests knowledge and skills necessary to perform basic Linux system administration.

"There is a need for certification in some corners of the computer marketplace," Leibovitch said. "It would be important to companies who are hiring or contracting and want to have a known minimum level of expertise. It gives a good level of reference to work from."

The exam costs $100, and candidates for certification can register through Virtual University Enterprises' Web site. There are 1,464 VUE centers open to the public worldwide. The other exams in the series are in development and are expected to be deployed later this year, Leibovitch said. ∎

"In the war of editor interfaces, CodeWright is the great peacemaker."

Armed with top quality products, superior knowledge and highly qualified engineers, US Software stays in step with the rapidly changing embedded systems field. Equipped with CodeWright, their engineers do battle with code each in their own way. Sometimes the tool makes the troop.

To see how CodeWright can work for your troop, go to www.premia.com/team for an overview.

Nicholas James Witchey, CodeWright convert since 1996
William Gustafson, CodeWright convert since 1997
Chris Greiveldinger, CodeWright convert since 1998
Steve Daily, CodeWright convert since 1997
Software Engineers, US Software
www.ussw.com

CodeWright®

The Programmer's Editing System™

the source code **intelligence** company™

Windows 2000/98/95/NT

News Briefs

EMC Corp. will acquire **Softworks Inc.** in a cash transaction valued at $192 million. Softworks, of Alexandria, Va., was ranked among Business -Week's 1999 Hot Growth list of America's 100 fastest-growing small companies . . . The **Association of Shareware Professionals** has released PADGen version 1.0, a free Windows 9x/NT 4 program that makes it easy for software developers to submit their software to Internet download sites. The PADGen program lets software authors create a single company-level information record that can be accepted by almost any Internet software site . . . **IBM Corp.** has announced that a six-way RS/6000 S80 server running the AIX operating system has set new records for Java performance and scalability, surpassing the previous record holder, a Sun Enterprise 6500 server containing three times more than the number of processors. In VolanoMark 2.1.2 local performance testing with 200 connections, a six-way RS/6000 S80 running Java 2 version 1.2.2 and AIX 4.3.3 transferred 33,906 messages per second per connection, a 35 percent increase over the previous top results posted by a Sun E6500 server configured with 22 processors . . . A dozen new ISVs have joined Code Blue, the developers program of **Bluestone Software Inc.** The new Code Blue members include **Alphonso Informex Pvt. Ltd.; BAPA Inc.; Brickhouse Data Systems Inc.; Cadnetics Inc.; ClearLogic Inc.; Creative Sun Inc.; Database Consulting Group Inc.; Eden Technology; I.C.E. Wireless; Kanrad Technology; Nichols;** and **Orchid Systems Inc.** . . . **The Imaging Source** and **LEAD Technologies** have co-developed and are announcing the immediate availability of a new ActiveX SDK called FPICS (Frame-grabber Programming Interface Control Standard). FPICS allows developers and OEMs to build advanced capture applications using the industry's first programming standard for frame-grabbers . . . **C Level Design Inc.** has introduced two new system-level design tools, CSim and System Compiler, that form an environment for design, verification and implementation of complex systems in ANSI C/C++ . . . In 1999, for the seventh consecutive year, **IBM Corp.** was awarded the most U.S. patents. With a record 2,756 patents issued by the U.S. Patent and Trademark Office, IBM topped the next closest company by more than 900 patents.

John Harrison is set to join T.sqware Inc. as vice president of software engineering, overseeing development of next-generation software applications for the company's network "edge" processors. Harrison, 42, was senior director of software engineering at Fujitsu Nexion, where he managed a team of 150 engineers that developed a carrier-class, broadband multiservice switch. Harrison was expected to begin his new job Feb. 1 . . . Comings and goings at Red Hat Inc.: **Michael Tiemann** has been named to the position of chief technical officer. Tiemann was co-founder and acting CTO of Cygnus Solutions, which Red Hat recently acquired. Tiemann is replacing **Marc Ewing**, co-founder and former CTO of Red Hat. Ewing will remain as a member of the board of directors, as well as serve as a director for the Red Hat Center for Open Source. Meanwhile, **Frank Batten Jr.** has resigned from Red Hat's board of directors to pursue venture investment opportunities . . . Open Market Inc. announced that **Jeff Bussgang**, vice president of marketing at Open Market, has resigned in order to pursue an opportunity as the president and chief operating officer of a new Internet start-up founded by **Michael Bronner**, founder and chairman emeritus of Digitas Inc., formerly Strategic Interactive Group and Bronnercom LLC . . . Blue Sky Software Corp. announced **Bob Beauchamp** to the Blue Sky board of directors. Beauchamp is the senior vice president of product management and development for BMC Software . . . Linuxcare announced the appointment of **Bob Walters**, an experienced high-technology executive and a former Marine fighter pilot, as vice president of business development. Prior to joining Linuxcare, he was vice president of corporate strategy at Informix Corp. . . . Advanced Micro Devices Inc. named **Hector de J. Ruiz**, 54, the former head of Motorola Inc.'s semiconductor business, as president and chief operating officer. Sunnyvale, Calif.-based AMD has been looking for a new president and chief operating officer since **Atiq Raza** resigned in July 1999 . . . Atipa announced that **Marc Torres** is its new chief technology officer. Torres will lead the research and development arm of Atipa, as well as act as a bridge to the Linux community. ∎

WILL LINUX SHATTER WINDOWS 2000?
Vendor support continues to increase

BY LISA MORGAN

VA Linux Systems Inc. led a watershed of Linux announcements last month, many of which indicate the continued evolution of the open-source operating system. During the months the industry has been waiting for Microsoft Corp. to deliver on the highly publicized release of Windows 2000, Linux activity gained momentum, continuing to dominate Internet appliances and holding its own in the server market.

VA Linux Systems (www.valinux.com) launched SourceForge, an application service provider designed to fuel the development of Linux open-source solutions. The site includes a source code hosting service, version control tools and communication resources. It provides developers with free access to software development and management tools, as well as upgrades and services. Several components of the Linux kernel are available, including client and server applications for chat, e-commerce, FTP, Internet Relay Chat and e-mail, as well as education and scientific applications.

SourceForge exemplifies the open and collaborative nature of open-source development. It is potentially the catalyst for an explosion of Linux solutions. Creative Computers Inc. launched a similar site at Linux World Expo this month, called eLinux.com, that's also meant to serve as an aggregation of products, news, discussion groups, services, support and information. The potential enabled by these communities may represent an opportunity for Linux and a threat to Microsoft. Thus, the great debate about Linux vs. Windows 2000.

Dan Kusnetzky, program director of International Data Corp.'s Operating Environment and Serverware Research, said that despite the Linux hype, high-flying IPOs and emergence of real Linux solutions, Microsoft will maintain its leadership position for the foreseeable future.

"Linux has some major hurdles to overcome," said Kusnetzky. "Right now, users are bringing Linux in through the back door. It's too much of a tool kit for the average user, and the major enterprise applications haven't been ported to Linux yet."

These early market symptoms once applied to PC-DOS and the MacOS, other operating systems that made their way through the back door. The point is, whether CIOs like it or not, Linux is finding its way into companies, be it on the desktops of engineers, researchers or scientists or as Web, database, messaging, file or print servers.

Kusnetzky said that many of the hurdles he's identified are symptoms of early market development. "Linux is just starting up," he said. "It's a high-quality solution for an engineer but not for typical end users yet. Linux needs to become easier to use, which is why companies like Corel are working on user interfaces and productivity applications."

Eric Klein, senior analyst at The Yankee Group, agrees that Microsoft will continue to be a force to be reckoned with but that the groundswell of support from server vendors is indicative of a trend.

"Linux is a very big threat to Microsoft," said Klein. "Support from Dell, IBM, Compaq and HP validates the operating system. Linux is here to stay."

George Weiss, vice president and research director of Unix and Midrange Strategies at The Gartner Group, agrees that Linux may well threaten Microsoft. "The release of Microsoft 2000 isn't a slam dunk for Microsoft," said Weiss. "People are attracted to Linux because it's supported on many hardware platforms, has multiple distributions, and provides frequent releases and improvements." When asked if Linux's popularity in Internet-related servers threatened the bottom line of Microsoft's Windows 2000, he replied, "If volumes and growth are in those markets, it could affect Microsoft's revenue."

Further evidence of industry-level Linux support came as Computer Associates International Inc. and Red Hat Inc. announced an agreement to deliver business system management software combined with the Linux operating system, which is a direct assault on both Windows NT/2000

and Unix-based systems.

Microsoft has established a reputation in the enterprise market that is both famous and infamous. Its fame is the result of comprehensive solutions that complement its operating systems, partner and developer support, an established brand name and marketing muscle. The installed base of Windows 95/98/NT is unparalleled, which is why no one gets fired for buying Windows, even though the operating system is notorious for system crashes.

Conversely, Linux is an open-source operating system that is not being developed, deployed, marketed, supported or single-handedly driven by a monolithic organization. There is a community of support but little direct accountability. This may pose a major stumbling block, at least in the near term, for IT organizations that may question whether the free price tag of Linux may actually turn out to be too expensive.

Weiss of The Gartner Group said the support model is just different. "[Linux] support isn't as integrated in the conventional sense. Then again, most users are not asking for a lot of support," he asserted. "Linux is a stable operating system and Windows isn't."

The support issue is being addressed, albeit not by an entity like Microsoft. EBiz Enterprises introduced a new Web site called TheLinuxLab.com, a certification authority and open-source support provider that offers interactive technical support, where users can get advice from more than 1,800 registered experts from around the world.

In a related move, MyHelpdesk.com unveiled help directories of technical support for 20 distributions of the Linux operating system and some of the most popular Linux applications. The directories include help for Web browsers, graphical desktop environments, utilities and add-ons.

Linux education also got a boost from EarthWeb Inc. (www.earthweb.com), which is offering a comprehensive Linux course designed for IT professionals who are tasked with setting up and administering Caldera Linux and Red Hat Linux.

Perhaps the combination of education, developer resources and technical support coupled

Metrowerks Offers Free Online Programming Classes

CodeWarriorU's training centers on company's products

BY REBECCA ROHAN

Metrowerks Corp., the maker of CodeWarrior desktop and embedded software development tools, is offering free online programming courses at CodeWarriorU.com. The site opened for online registration on Jan. 5 and courses were to begin Feb. 2. The first classes planned are Introduction to C++ for Macintosh and Introduction to CodeWarrior for Macintosh. "Our intention is to launch 15 or 20 courses over the next year," said David Perkins, president and CEO of Metrowerks.

"A course isn't intended to replace a university," said Ted Finch, senior vice president of marketing at the Austin, Texas-based company, "but it's a wonderful supplement and will give very equivalent course material. People with educational backgrounds are putting it together."

"All of these courses are being taught using CodeWarrior as the IDE [integrated development environment] of choice,"
said Finch, "so all the homework will refer to screens that are CodeWarrior, but all the information should—I emphasize the word should—be applicable in other environments."

The post-registration e-mail reads: "Prior to the first day of classes, please stop by the CodeWarriorU.com Store to purchase our recommended course materials at discounted CodeWarriorU.com prices: http://www.CodeWarriorU.com/Materials/Store/1,5754,1_1,00.html."

The Professional version of CodeWarrior costs $499, but Metrowerks (www.metrowerks.com) is offering those who register as students a $119 academic triple version of CodeWarrior for Macintosh, Windows and embedded systems for Motorola chips. (Motorola Inc.'s Semiconductor Products Unit purchased Metrowerks for $95 million in August 1999.)

"Registered students will have access to an instructor with office hours who will help you
figure out how to debug snippets of code that you send him or her," said Finch. "We currently have 15 instructors." The number of students registered by mid-January was 3,000. "We were planning on maybe 50," said Finch. "We are currently hiring additional instructors."

Three thousand registered students means 3,000 people eligible to purchase the academic version of CodeWarrior. But there's no guarantee all those students will show up. The most prominent feature of the CodeWarriorU.com main screen is the picture of the Sony Aibo Radio Dog that people are eligible to win if they register for a free class. The robot dog appeared with Metrowerks at January's Macworld, too, where crowds registered for classes and a chance at the dog.

MORE THAN DIRECT SALES

Besides hoping to make money with sales of CodeWarrior, Metrowerks has some unan-
nounced alliances with other Web sites in the works. "One would be a job site," said Finch. "If the candidate is not qualified, they could click on CodeWarriorU and get the training." Hardware vendors also are planned allies. As for other sites paying fees, "we haven't worked out all the models," Finch said. "We expect initially to bear the burden." Currently, there is no advertising, but it's not ruled out.

Finch said that eventually there may be "introductory courses that appeal to the masses. Later, when they recognize the information is valuable, we will have serious students. We are the official IDE product for Palm. We'll move people over from Java and help the educational community with the AP [advanced placement] exam preparation." CodeWarrior is already in schools, and Finch would like to see "young children exposed to programming." Finch said he also expects the courses to widen the programmer pool and to train Metrowerks' own distributors.

"From DSPs [digital signal processors] to embedded microprocessors, we're very much in
sync with Motorola's product offering, and we support Motorola's products with our development tools," said Perkins.

"This is a vehicle we can definitely expand on," Perkins added. "When bandwidth expands, we may let people in certain market segments access the tools online so they only rent them while taking the course."

AFTER-SCHOOL FUN AND GAMES

Metrowerks also recently began shipping an update of its CodeWarrior development platform for Sony's PlayStation2. Version 1.5 of this integrated development environment includes a project manager for configuring and managing multiple build configurations, and an upgrade to the product's optimizing C/C++ compilers. The compiler and other tools require Sony's computer Entertainment SDK, and uses the SK's assembler and C/C++ code libraries.

According to the company, Metrowerks will provide a suite of performance analysis tools for PlayStation2 applications. These enhancements are expected to ship in 2000. ∎

Pervasive's New Linux App Server

Pervasive Software Inc. has introduced the Tango 2000 Application Server for Red Hat Linux, Caldera OpenLinux and SuSE Linux. The new application server is designed to work closely with Pervasive.SQL 2000 database server for Linux, as well as other databases via ODBC. The Pervasive.SQL 2000 database is included with the Tango 2000 Application Server.

Other versions of the Tango 2000 Application Server already are available for AIX, Macintosh, Solaris and 32-bit Windows. Prices range from $1,295 to $25,000 per server.

"Multiplatform support is a hallmark of Tango 2000," said Greg Hemstreet, general manager of Pervasive's Tango business unit. "The cross-platform Tango Development Studio allows Web developers to quickly create Web applications on Windows or MacOS, and then deploy those applications in any combination of operating environments, including three of the leading distributions of Linux, without having to recompile code."

In addition, the company (www.pervasive.com) offers the Tango 2000 Development Environment, a rapid-deployment tool designed for three-tiered Web applications. ∎

NOVELL FIGHTS MICROSOFT FUD WITH NEW WEB SITE

BY DAVID RUBINSTEIN

Who says there is peace in the land of operating systems?

With the release of Windows 2000, Microsoft Corp. has put its marketing machinery into high gear. In response, Novell Inc. is bracing for the onslaught and even firing back with sticks and rocks aimed to intercept Bill Gates' rockets.

As part of its media blitz, which is expected to be the most expensive campaign in history, Microsoft is positioning Windows 2000 and Active Directory as a viable alternative to Novell's more mature NetWare and NDS eDirectory platform.

Novell has responded by creating a Web site—a much less expensive method of disseminating information—that offers what it calls compelling reasons why Novell's networking solutions fulfill the needs of business more effectively than Microsoft's, while poking holes in the claims regarding the rollout.

The site, at www.novell.com/advantage, includes a daily "Did You Know" section about features in Windows 2000 that businesses, it claims, should understand before making a choice of networks. The company points out that Active Directory does not run on Sun Solaris, NetWare or Linux. No kidding. Thanks, Novell, for clearing that up.

The firm also points out that past false statements made by Microsoft on its Web site regarding NetWare and NDS were removed after some legal machinations. But that's pretty old news.

It appears Novell is up for the fight. But if customers choose the new Microsoft products, Novell is prepared for that, too. The company said it will continue to add value to Microsoft and integrate Microsoft products into heterogeneous networks. A Pyhhric victory, at best.

Anybody got a slingshot? ∎

SOLARIS

Any others, beyond Install-Shield?
We're actually shipping a number of GNU tools with Solaris this time around. We're shipping Perl 5 along with Solaris 8, for example.

Okay, why Solaris 8?
Solaris 8 is the second version of our 64-bit technology. There's a long list of "what's new in Solaris 8." One of the areas is support for Java 2 and the Java 2 SDK. We have really the only good, scalable VM [Java Virtual Machine] on the market today. If you're a Java developer, and you want to deploy on a scalable platform, Solaris 8 is the ideal platform. We're working to get beyond 24 processors.

Tower's TowerJ beats Sun's JVM in Volano's benchmarks.
We see a lot of benchmarks on single-processor systems. We haven't seen many on, say, eight or 16 CPUs. Down in the one or two-CPU range, we see a lot of leapfrogging of performance. But for an Internet company doing high-end development with Java for Web applications, if they don't build it on a really scalable architecture, given the unpredictability of demand on the Internet, their success can actually be their demise. Whether they're using a JVM or a native application, we believe that by picking Solaris they get the architectural continuity and also get this much-vaunted scalability. An extremely powerful message is that you can write an application that automatically resizes itself—actually, it doesn't do it, the operating system does that for it. Whether it's running on a four-way or a 64-way, the app will take advantage of the resources available to it.

Is that under both the Intel and Sparc hardware architecture?
We've been successful with scalability under Intel. The difficulty with the Intel architecture today is that the machines are not designed as a highly scalable system. You know, an interesting thing about the Solaris kernel is that it really is a symmetrical kernel. There's no master processor, and as a result we can take CPUs offline, bring them online, or shift resources between domains without ever shutting down the system, without ever rebooting, or even restarting an application. For a developer, when you're building your application, all of this functionality goes into your application without your having to do anything special.

SUN AND LINUX

When talking recently with another Sun executive, he indicated that to many of Sun's large traditional customers—big banks, government and so on—he feels that open source is not a selling point: "If something goes wrong, customers want to call Scott McNealy and yell at him. If they're using Linux, they might call Linus Torvalds, but he'll say, 'Hey, I didn't write that.'" Is that where the debate is falling?
That's exactly right. We want to make our intellectual property more freely available to the developer community at large, but we have to move carefully for solid legal reasons, to begin with, and to make sure we don't confuse anybody with what is Solaris, and what isn't Solaris. We have to make sure that people aren't trying to build something that's a little bit different and still passing it off as Solaris.

So you wouldn't want to see a Red Hat Solaris distribution and a SuSE Solaris distribution and a Caldera Solaris distribution...
Well, we'd want to ensure that something like that would be absolutely 100 percent binary compatible with what's in Sun's Solaris.

How would that be different from Java, where there's 100% Pure Java, and third parties have to run the Sun compatibility suite? Couldn't you have a 100% Pure Solaris, with tests running on reference hardware?
Philosophically speaking, you could do that. Realistically, don't expect to see that anytime soon. This is baby steps, right? Sun started out being part of the open software community, a founder of that community. But for many years, we've been very focused on delivering what the data center needs, what our big customers need—and they're not interested in open source at all.

We've strayed away from that [open software] community. We need to find a way to get back to that community. We've seen what's happening with Linux, which is tremendous, a wonderful thing for anyone committed to Unix, because Linux and Unix are very very similar. It's a solid example of what you can do in the open-source community that we were a founding member of many years ago. We're finding out how we can become a better member of that community.

Speaking of Linux: I'm holding a copy of Red Hat Linux 6.1 for Sparc. If I'm a development manager, and I've bought this for $49.95, and it runs all the GNU software just like Solaris...why not Linux?
We are very clear that we are 100 percent committed to Solaris as a company. It's our operating system, it's our distribution of our operating system. Solaris really is a superior operating system to Linux. Where Linux is tremendous is on all the single-CPU Intel systems running Web servers.

The Linux/Apache solution.
That [Linux and Apache] will blow any other combination off the planet right now—it really does! It's small, fast and a very good solution for a small ISP or business. If you look at the dot-com architecture going forward, small ISPs do horizontal scaling, where they just add more small boxes when they need more capacity. This works really well for a while, and if you're running Linux I'll maintain that you're running an operating system that's more reliable than what Microsoft offers. I wouldn't say it's as reliable as what Sun is offering today. But when they start to grow, they have a database on the back tier, which they're likely to run on one big server, like a Starfire, or maybe even a cluster of Starfires, to provide vertical scalability.

In the middle, you don't need vertical scalability because synchronization happens at the database level.
Exactly—the database synchronizes everything, so you can get away with horizontal scalability. And that's the dot-com architecture moving forward. Another issue is that when companies have hundreds of Web servers, they don't even know where all the servers are! That leads to server consolidation, and vertical scaling on one operating system that really performs well across this new dot-com architecture. And that's Solaris.

Say there's Linux now in that middle tier, maybe on 30 machines. If you start growing that, you can just transition from Linux to Solaris. We're trying to make [that transition] easy. We built a feature called LX1, a Linux compatibility layer than runs on top of Solaris. It has limitations, but we provide this to make it easy for a developer to write either a Linux app or a Solaris app and have it run on a Solaris system.

Any final thoughts?
What makes Solaris 8 compelling going forward is that Solaris 8 will be the platform for our new clustering products. The clusters we have now provide some parallel processing capabilities and some fail-over capabilities, but they're primarily for fail-over. When it ships, Clusters 3.0 will look like a global file system, and that is our focus moving forward. For the most part, we're hiding the complexity of that under Solaris' applications binary interface layer. Developers will not have to develop their applications for clusters. It's very much unlike what our competitors do today. ∎

Ads in the Applications

NEW MODEL MEANS REVENUE FOR DEVELOPERS, SAVINGS FOR CONSUMERS

BY LISA MORGAN

Software may be going the way of television programming and the Internet: The content is free, as long as customers don't mind looking at advertising.

Last November, Mountain View, Calif.-based Aureate Media Corp. released AdSoftware 3 that embeds advertising in software applications and gathers demographic information on users. The company is partnering with more than 300 software developers and publishers, such as Bothell, Wash.-based LapLink.com Inc., to provide so-called "sponsored software" to users at no charge.

Sponsored software is, in theory, commercial-grade software that users can get free or at a reduced cost as paid for or subsidized by advertising. The advertising, such as logos, images or banners, is embedded in the software application, which can be distributed over the Internet, on CD, or both. The ads appear on the user's screen along with the application, sometimes in a separate window, sometimes in the application screen itself.

EXTENDING TRADITIONAL WEB MODEL

Aureate's software is provided free of charge to software developers. The code can be dragged and dropped into applications in less than five minutes, said Jeff Ready, Aureate's vice president of marketing. Aureate sells the resulting ad space to advertisers such as eToys, Visa and Intel. The advertisers can place their ads in a specific application, in a group of applications segmented by demographics or throughout the entire network.

Aureate (www.aureate.com) works with content portals such as CNet and ZDNet to distribute the software. Surfers who visit these sites and download applications provided by Aureate become part of a demographic segment that Aureate can use to attract advertisers. Users benefit from free software, Aureate and its member developers benefit from broader distribution, and content portals get free access to software that can be downloaded for free by their audiences, with the objective of increasing traffic to their sites.

"[Sponsored software] is just a logical extension of the traditional Internet model," said Mark Eppley, CEO of LapLink.com. "Besides the supplemental revenue, a side benefit is the usage statistics."

The information Eppley refers to is one of Aureate Media's most valuable features, according to Ready. With it, developers can identify users, get demographics on those users, and learn what types of product features users want.

"When developers sell box products, their relationship with the customer ends at the cash register because only about 1 percent return registration cards," asserts Ready. "On the Aureate Media Network, the sale is where the relationship begins. If you provide users with free software, they're happy to view ads and answer a few survey questions. We encourage our developers to use the messaging feature to apprise users of bug fixes and product updates."

Ready claims the Aureate Media network has more than 15 million unique users. CMGI @Ventures recently invested $5 million, which was "a major selling point for us," said LapLink.com's Eppley. Prior to joining the Aureate Media Network, LapLink.com first tried the sponsored software concept when it teamed up with Conducent Technologies Inc. of Sterling, Va., another prominent player in the space. Eppley said there were "technical issues, so we switched to Aureate Media for [LapLink FTP] version 2.0."

Conducent's solution may

A smiling face brightens up LapLink.com's LapLink FTP client.

not have worked for Lap-Link.com, but the company has a customer base that includes eGames, the fifth-largest family game publisher and PKWare, the developer of the popular PKZip utility. Also, Conducent (www.conducent.com) is providing users with yet another option in the retail channel, as demonstrated by eGames. When a consumer buys an eGames CD, he or she can elect to view ads or not. If the customer chooses to view ads, he or she gets access to additional games that are also included on the CD for free. Consumers who don't want to view ads only get access to the game they purchased.

"When software developers give away products, they gain market share," said Robert Regular, director of marketing at Conducent. "We see big opportunities for retail software companies."

Like Aureate Media, Conducent's software is made available free to developers, and the company has established an impressive list of distribution partners, including ZDNet, Lycos, WinSite, RocketDownload, Quote.com, Briefing.com and Reuters. By contrast, Aureate Media's distribution partners include McGraw Hill, IDG Books and Software-of-the-Month Club, among others. Both companies first applied the ad-supported model to games and are now attempting to change the economic model of the software industry.

Ads on the Aureate Media Network range from $15 to less than $100 per thousand impressions, depending on the media

buy. For example, an advertising buy targeted at female entrepreneurs in New York would cost more per thousand than a more general buy targeted at women, entrepreneurs or people who live in New York. Ready said the payoff also varies, but that the freeware and shareware partners are getting a few thousand dollars per month or more, of which Aureate Media gets 40 percent and the developers get 60 percent.

GoZilla, an Internet download utility, started out a classic freeware story. The free Internet download utility developed by Aaron Ostler once generated several hundred dollars per month. As a result of joining the Aureate Media Network, GoZilla now generates revenue of $300,000 per month, said Ready.

From a sales perspective, buyers love free stuff. And if they can get a product free they once had to pay for—even if it's filled with pesky advertising—all the better. Sure, a lot of people will complain about the ads, but they won't complain about a zero price tag.

Qualcomm Inc. (www.qualcomm.com) already took the plunge without help from Aureate Media or Conducent. In December 1999, the San Diego-based company introduced a sponsored version of its popular Eudora e-mail client. Users who are willing to tolerate advertising can download the software free, which normally sells for $49.95. Customers still have the option to pay list price and not see the advertising.

Jeff Belk, Qualcomm's vice president and general manager of Eudora software products, said the sponsored version "is already a success." Conservatively, he expects 20 percent to 25 percent of the 16 million users of his company's current free e-mail package, Eudora Light, to convert to the sponsored version of Eudora. Said Belk: "We'll make more money from advertising than selling the software."

LapLink.com is also offering a paid version, according to CEO Eppley. "With version 2, we now offer a version without advertising for $29.95. Most customers opt for the free version and don't seem to mind [the ads]."

'GUERRILLA' ADVERTISING

Darren Albers, media director at DMNA Advertising in Palo Alto, Calif., thinks ad-supported software is a big opportunity. "The market is changing and

evolving," said Albers. "[Ad-supported software] is another category of guerrilla-type advertising companies are using to rise above the noise."

Albers said the dot-com craze has significantly altered how companies buy media. At first, many dot-com companies tried advertising online only but quickly learned that they needed to leverage offline media. Conversely, the traditional brick-and-mortar stores are advertising online. With so many businesses advertising online, "everyone is fighting for eyeballs." That means companies have to get attention in new ways using guerrilla tactics.

Albers said his agency hasn't purchased ad space on a software application or CD yet, but on behalf of clients, he purchases similar space from NetZero, a service provider that offers free Internet access to people who are willing to view ads. He'd also consider buying advertising on software applications and CDs, but his ultimate decision to buy would depend on the demographics of the audience, the application itself and his clients' needs.

"Anytime you can reduce the cost of technology" Albers said, "means that more people will adopt it."

Although Aureate Media and Conducent are bullish about the market potential of ad-supported software, Doug Root, director of sales and marketing at Premia Corp. in Beaverton, Ore., is bearish.

"Ad-based software will be somewhat successful, but it might be compromising valuable user space to accommodate banners and advertising," Root argued. "Premia will launch a stand-alone Internet search application [this month] that will be available free and feature a limited amount of sponsors. The difference is our sponsors will provide part of the content, not flashy banner ads."

Despite what Root said, Aureate Media and Conducent provide advertising guidelines and invoke a level of quality with the goal of minimizing the potentially disruptive nature of ads embedded in software applications. Qualcomm is also being careful about implementing advertising. The ads included in the sponsored version of Eudora are static as opposed to animated. "Users don't want their productivity compromised," Belk said. ∎

500,000 downloads of Sun Microsystems' Java™ Foundation Classes.

Multiple platforms.

One installer.

InstallAnywhere®

Deploying enterprise software across multiple platforms? Whether they're applications, libraries, or servlets written in Java or platform specific code, InstallAnywhere is the only solution that creates a single, universal installer that can deploy software from the Internet or CD-ROM to virtually any platform, including Windows, Solaris, Linux, AIX, and Mac OS. Try it today and find out why companies such as Sun Microsystems, Adobe and FedEx are using InstallAnywhere to ease the deployment of their software across multiple platforms.

Any application. Any platform. The only solution.

Be Stinger: A Build-to-Order Unix Kernel for Internet Appliances

BY EDWARD J. CORREIA

The embedded systems market may be getting a shot in the arm. Developers building Internet appliances using off-the-shelf solutions can now add a Unix kernel to their arsenal.

Be Inc., maker of BeOS, a high-performance, Unix-based operating system designed for digital media and Internet content delivery, offers a small-footprint version designed specifically for set-top boxes, tablet PCs and PDAs. The company will compete for Internet appliance market share with the likes of Wind River Systems Inc., Microsoft Corp. and Sun Microsystems Inc.

Code-named Stinger, Be's build-to-order operating system for Internet appliances occupies 16 MB of memory and can be packaged in common persistent storage devices, such as Compact Flash or ROM, and can execute in 32 MB of RAM, according to the company. Stinger supports IEEE 1394 Firewire, IDE, SCSI and a wide variety of video resolutions. And although Stinger supports legacy ports including serial and parallel, USB has been the I/O standard of choice by licensees thus far, according to Frank Boosman, vice president of marketing communications for Be (www.be.com). Chip-set support includes Intel x86 and PowerPC, but Stinger also has been tested with National Semiconductor's Geo chip sets and support is scheduled for the platform soon, said Boosman.

Be is positioning Stinger as a turnkey solution for OEMs to deliver a high degree of cus-tomizable functionality and to reduce development time.

Rather than building hardware to specifications developed by the operating system manufacturer, Be plans to integrate the drivers necessary for devices specified by the hardware maker. This modular approach to building operating systems, coupled with its relatively small size, gives Be a unique advantage over larger competitors, which generally are slower to react to customer requests, said Boosman.

But being small might also work against Be Inc., which may lack the resources necessary to sufficiently aid its customers in bringing products to market. "Building an Internet device requires lots of specialized support," said Jerry Fiddler, president and founder of Wind River Systems, a leading supplier of embedded systems and services.

"Doing this is a lot harder than it looks. Many companies have tried and failed, including Microsoft, which has enormous resources. OEMs require training, design services, development tools and help with things like network protocols and file systems," all of which require highly trained engineers and support personnel, said Fiddler. Not all companies are equipped to handle these needs. After its acquisition of Integrated Systems Inc., which is still pending, Wind River will employ roughly 300 engineers, 150 of whom will be dedicated to customer support.

Founded in 1990 by former Apple Computer Inc. executive Jean-Louis Gassée, Menlo Park, Calif.-based Be employs 105 people, 54 of whom are engineers and technical support staff. The company has made headlines both for Be Stinger and for its recent announcement that it will give away BeOS beginning with version 5. Stinger can be tailored to suit the needs of hardware developers.

According to Boosman, the Stinger user experience is pure HTML. The operating system boots by default to the Opera Web browser in full-screen mode. Opera is an SSL-compliant browser with the ability to process JavaScript and cascading style sheets. Audio and video streaming are handled by the Real Networks G2 player embedded into the system. Through a recent licensing agreement with Sun, Stinger will support Java 2 and Personal Java in a future release.

Several companies have announced plans to develop hardware using Stinger, or at least to consider it. Among the first companies to produce a sample product is QuBit Technology Inc., which is scheduled to release a pen and tablet–style Internet appliance this spring. Compaq Computer Corp. in December 1999 signed a licensing agreement with Be and committed to evaluate Stinger. Though it's too early to comment on specific products in development, a Compaq spokesman indicated that the agreement included no commitments to produce a product, and said that the company also was looking at the MSN-based Web Companion from Microsoft and at Linux-based solutions. ∎

FREE BE LOOKS TO STING THE OS MARKET

While standing in the shadow of a giant, one way to get attention might be to sting the giant's nose. Another is to make lots of noise while giving something away for free. According to a recent announcement made by Be Inc., the company is preparing to do a little of both. Beginning on or before March 31, 2000, the Be operating system for Intel x86 and PowerPC processors will be available for personal use absolutely free. And the timing could not be better.

With microcomputer users clamoring for alternatives to Microsoft Windows, non-Windows operating systems for the first time appear to have a chance at gaining some market share. Following the pattern of Linux suppliers, Be will make a personal version of its Unix-based operating system available for free download over the Web starting with the release of BeOS version 5, a version with the potential to sting.

For curious computer users, or skeptics hesitant or unable to create a dedicated partition, BeOS version 5 will exist as an executable file and run from within Windows with no appreciable drop in performance, according to the company. In its current version, BeOS 4.5 installs on a hard-drive partition. An included boot manager can facilitate multiple operating systems at boot time. Although the option exists, there will be no need to install BeOS 5 on a dedicated partition; users may simply double-click an icon to exit Windows and activate BeOS 5 and its file system. BeOS 5 will not be able to execute in this way on machines running MacOS.

The free version of BeOS 5 will include all the development tools currently bundled with BeOS 4.5, plus support for mul-timedia and networking. For commercial users, an expanded version will be available for sale. Be claims that BeOS, touted as a "high-performance" alternative operating system, was designed from the ground up for rapid media handling with faster boot times than other systems. It features a native GUI and supports popular video and audio streaming standards. Applications run in protected memory, precluding the need to reboot the system if one crashes. Its Web browser is SSL compliant and supports Java and cascading style sheets. As with Linux, "the greatest drawback to BeOS is a limited number of available applications," said David Hafke, a consultant with Linear Technologies, a New York-based network consulting firm. "But anything that competes with Windows is all right by me, especially if it's free."

–Edward J. Correia

Battle of the Embedded RTOSes

Red Hat, Wind River vie for global supremacy

BY EDWARD J. CORREIA

Since the completion of its acquisition of embedded software developer Cygnus Solutions, Red Hat Inc. has wasted no time taking advantage of its newfound tools, while the company's new CTO is stirring a little controversy.

Earlier this month at Linux World, Red Hat announced Red Tools for Embedded Developers, a point-and-click environment for developers with Intel-based machines to create, deliver and debug bootable Linux kernels to IA32 and PowerPC targets. The SDK is available for $599 and includes a Linux kernel for IA32 and PowerPC platforms, installation support and one year of product updates.

At the heart of the controversy are comments made during an interview about Red Hat's announcement by Michael Tiemann, founder of Cygnus and Red Hat's new CTO. When asked about competition for operating system dominance in the Internet appliance market, Tiemann said, "Few [Internet appliances] are using proprietary operating sys-tems like [those of] Wind River and ISI, and [those operating systems] are declining in the non-Web market as well."

"You can see that's not true by reading the *EE Times* survey," rebutted Jerry Fiddler, co-founder and chairman of Wind River Systems Inc., referring to a study of embedded systems usage published in September 1999 by *EE Times*. The newspaper annually surveys its readers and reports which embedded systems are in use now and planned for the future. After solutions developed in-house, Wind River held the top spot with VxWorks, the survey said.

"Wind River is totally committed to the goal of software platform development in the embedded industry," said Fiddler. "In fact, as the market leader, we take it as a responsibility to help move the industry forward." Wind River (www.windriver.com) is in the process of acquiring Integrated Systems Inc. (ISI), positioning the company for greater Internet appliance market share. And ISI's flagship product, pSOSystem, was the third-most-used real-time operating system (RTOS), according to the survey.

Both companies offer tools that let OEMs configure the RTOS to suit the target device.

The advantage of the Red Hat product, said Tiemann, is its nonproprietary, open-source position and its conformance to the EL/IX standard, which prevents the propagation of multiple Linux kernels.

"If 1999 was the year of Linux, then 2000 will undoubtedly be the year of embedded Linux," said Tiemann.

"Establishing a universal software platform in the embedded space is an immensely difficult job," said Wind River's Fiddler. "There is no hardware standard to port to, and the hardware alternatives continue to expand. Wind River is naturally interested in any technology that offers value in the post-PC embedded world, and we are closely following the developments around Linux," said Fiddler. ∎

BSquare Positions Itself for Internet

Company named premier porting provider by Microsoft

BY EDWARD J. CORREIA

BSquare Corp. has been doing some maneuvering lately. The Seattle-based maker of solutions for Windows CE and Windows NT Embedded has been aligning itself with major companies in the hopes of broadening its offerings, which now will also include developer solutions for Windows 98 and Windows NT/2000.

Most recently announced was an alliance with development solutions provider Applied Microsystems Corp. "Our two companies already were servicing many of the same customers with complementary products at different stages of the development cycle," said David Bialer, general manager of BSquare (www.bsquare. com). "The alliance will permit both companies to help [their] shared customers to build [Windows CE-based] devices

better and faster," and bring them to market more quickly, he said.

Among the products the two companies provide to OEMs are debugging tools for Windows CE devices, supplied by Applied Microsystems (www. amc.com), and validation and quality-assurance tools for ported applications, provided by BSquare. By combining forces, both companies initially hope to increase sales by also offering operating system licensing, software development and debugging tools, emulators, engineering services and platform testing. Also part of the initial phase will be an increased efficiency with which they provide their services to developers of all types of what BSquare terms Intelligent Computing Devices, including Web-aware phones, set-top boxes and mobile computing

devices. The second phase of the alliance will target integration of the tools of both companies into a shared development environment, Bialer said.

MICROSOFT AGREEMENTS

Thanks to a pair of recent agreements with Microsoft Corp., BSquare will be able to offer its software engineering services to a wider range of microprocessor manufacturers. Now at the center of Microsoft's newly announced Porting Partner Program, BSquare has been named Microsoft's premier provider of software engineering services to participants in the program. The new program opens the Windows CE environment to support all microprocessor architectures and presents BSquare as a top provider of software porting services. In addition, Microsoft has contracted BSquare to de-

velop a "processor drop-in module" for Windows CE, which will enable the operating system to work seamlessly with different microprocessors.

Microsoft also has released BSquare from a noncompete clause of its contract, enabling the company to perform software tools development outside the Microsoft family of products without prior permission from Microsoft. The revision enables BSquare to begin offering a wider array of services to manufacturers of microprocessors seeking to support Windows CE, a provision that serves the purposes of both companies. BSquare can potentially increase revenue by porting code of companies seeking to develop solutions through a more open Windows CE, and Microsoft helps grow the popularity of Windows CE, which has enjoyed limited success.

ACQUISITION OF BLUEWATER SYSTEMS

In other news, BSquare recently acquired BlueWater Systems

Inc. (www.bluewatersystems. com), maker of software development tools and integration services, in an all-stock deal. By acquiring BlueWater, BSquare hopes to expand its offerings from Windows CE and Windows NT Embedded systems to include solutions for Windows 98, Windows NT/2000 and Windows for SmartCard.

BSquare will continue to market many of BlueWater Systems' products, including WinDK 1.1 for Windows CE, a device driver development tool for embedded systems and industrial control developers; Time Critical Extension, a low-latency interrupt generator; WinRT 3.5, which provides binary linking between Windows platforms; WinRT-VB 3.0, an ActiveX control memory and port I/O development tool for Visual Basic versions 4.0 through 6.0; and WinDK, a set of device driver libraries for Windows 98, Windows NT/2000 and Windows NT Embedded plus an accompanying set of USB extensions. ▮

SUN J2ME

strong demand for developer's tools for the consumer market. "The [Java] standard edition has become so popular, Sun [found itself] being pulled in lots of directions, up to servers and down to personal products," said Tennant. "It is Sun's vision that [computing today] is moving away from traditional desktop model with local applications, to services being used by customers," he continued.

The Java 2 Micro Edition CD lists for $39.95, which includes everything needed to develop solutions with PersonalJava technology, Java Embedded Server software, Java Card technology, Jini Connection technology, K Virtual Machine and Java TV code, plus platform specifications and documentation. In addition, the CD includes third-party tools and two years of automatic software updates.

Sun envisions many devices that could benefit from running some form of embedded Java and that processor-intensive chores will be done centrally. Consumers will simply display the data resulting from applications being supplied by a service provider, Tennant said.

And there is no shortage of

interest among OEMs in the new platform. Sun has announced Java licensing agreements with Motorola, Sony, Ericsson, Nokia, Sharp, 3Com and most recently Vodaphone AirTouch, one of the world's largest suppliers of mobile communication devices and the U.K.'s leading provider.

The release of Java 2 Micro Edition comes on the heels of Sun's announcement of the availability of Java 2, the next-generation development environ-

ment for building embedded Web-centric applications. Formerly code-named JDK 1.2, Java 2 builds on the success of its predecessor, which now is embedded in virtually all enhanced-content Web sites. Java 2 was the result of the combined efforts of almost 200 Java licensees and input from thousands of Java technology developers worldwide.

The new platform boasts improvements to performance thanks to a new just-in-time

compiler and support for memory compression for loaded classes. It also now natively supports threads for the Sun Solaris operating environment. In addition, Java 2 offers faster memory allocation and improved garbage collection. The pluggable virtual-machine architecture now supports other VMs, including Sun's forthcoming Java HotSpot.

Java foundation classes are now core to the platform and include the Java look-and-feel

interface, Project Swing GUI components, drag-and-drop capabilities, and a Java 2D API providing 2D graphics capabilities and support for printing. Enhanced security also is inherent in the platform, with policy-based access control and support for X.509 V3 certificate interfaces. With the new platform also comes a complete set of APIs. Developers can download the Java 2 platform at java.sun.com /products/jdk. ▮

BEA, Nokia Team to Offer Development Tools for Wireless Devices

On one continent, the Finnish telecom giant Nokia Corp., one of the principal forces behind the Wireless Application Protocol, sells a WAP Application Server. On another continent, BEA Systems Inc. sells the WebLogic transaction server. When the two companies work together, the result is promised to be an off-the-shelf solution for ISVs and corporate developers, geared at helping speed development of WAP-compliant applications for devices such as next-generation PCS phones, digital pagers and PDAs.

The Wireless Application Protocol is a platform-independent specification for communication between wireless mo-

bile devices and the Internet. The organization governing the specification is the WAP Forum (www.wapforum.com), a consortium of 200-odd vendors, including hardware, software, carriers and telecommunications companies.

According to BEA Systems, applications expected to leverage the integration of BEA WebLogic Server and the Nokia WAP Server include stock trading, banking and financial services, order entry and confirmation, and other text-based transactions that can be compactly displayed on wireless handheld PCs or mobile telephones.

"The e-generation accessing

the wireless Web won't be content with just downloading basic information such as stock quotes and news dispatches. They will want to conduct e-commerce transactions on the go, anytime, anywhere," said Joe Menard, president of the BEA E-Commerce Server Division. "With BEA WebLogic Server as the engine of their WAP applications, they will have the same high-availability 24x7 access to personalized e-commerce services that they have on their PC browsers."

"By 2003, at the very latest, 50 percent of the one billion mobile phones in global circulation will be WAP equipped—including our own Nokia 7110 GSM

dual band phones for the European and Asian Pacific markets and the Nokia 7100 Series handsets for the U.S. market," said Gerhard Romen, vice president of enterprise, Nokia Internet Communications. "Also, by that time even greater numbers of people will access the Internet via a mobile device rather than a personal computer."

Romen added, "The integration of the Nokia WAP Server with the BEA WebLogic Server will play a significant role in meeting the exploding demand for wireless Web access, and in creating new business models and opportunities leveraging wireless connectivity to information systems." ▮

Acquisition of ISI Positions Wind River for the Web

BY EDWARD J. CORREIA

With an eye on the Internet prize, embedded systems developer Wind River Systems Inc. has announced that it will acquire Integrated Systems Inc. in a deal that will help Wind River concentrate on increasing revenue from the soaring Internet appliance market. In the all-stock deal, Wind River will offer .920 of its shares for each share of ISI, a transaction valued at around $437 million.

"Building [Internet devices] requires lots of specialized support," said Jerry Fiddler, chairman and co-founder of Wind River Systems. The acquisition of ISI will result in an organization that includes a team of 500 development engineers and more than 200

About half the Java designs in use today incorporate VxWorks, said Wind River's Jerry Fiddler.

technical service engineers, 150 of whom will be dedicated to product support. Wind River's primary product is VxWorks, an embedded real-time operating system (RTOS) supplied to roughly 3,000 designs a year. VxWorks is the operating system frequently used in managed network switches, routers and hubs.

About half of the Java designs in use today incorporate VxWorks, said Fiddler. To assist these developers, Wind River resells third-party development tools in addition to its own Personal Jworks Kit, an SDK for Personal Java. "By combining its resources with those of ISI, the company is better suited to keep pace with developments in technology and with the demands of consumers and companies building consumer devices," said Fiddler.

The acquisition will give the combined company a larger group of engineers to help it shift development and support efforts toward consumer-market Internet gateways and other Web-related appliances without each reinventing what the other does, Fiddler said. System development for Internet appliances represents about 10 percent of Wind River's pre-acquisition business.

In addition to its human resources, ISI held other products that will help Wind River (www.windriver.com) reach its goals. The company will gain access to pSOSystem, ISI's flagship product, an embedded RTOS that can be found in everything from gas pumps to space stations. Wind River also gains Doctor Design, a consulting firm that assists OEMs with embedded device development efforts. The consulting firm will be combined with Wind River's and will continue to use the Doctor Design name, which has more brand recognition, according to Fiddler.

The new corporate structure will follow Wind River's current model with the addition of three new business units. One unit will focus on the aerospace and defense markets, and another on the automotive industry. The third unit will concentrate on creating and marketing new and improved embedded software development tools. To organize integration of the two companies, a team will be headed by Chuck Boesenberg, CEO of ISI, and Dick Kraber, CFO of Wind River. ∎

Hail to the Chief?

Only two years ago, it seemed that the OS Wars had been won—by Microsoft Corp. Yet even now, as the long-awaited Windows 2000 finally hits the streets, we're seeing the competition heat up, at least on the server front. On the desktop, yes, the Win32 API set still reigns supreme. Despite the recent re-emergence of Apple Computer Corp.'s Macintosh as a significant player, and of the increased ease of use in many commercial Linux distributions, most developers will continue targeting Windows for corporate end users.

On the server, Microsoft's back-office victory is far less clear-cut today than it appeared a year or two ago, when Windows NT mania reached its peak. Yes, Windows NT 5—that is, Windows 2000 Server and Advanced Server—are shipping this month, and by all accounts offers a tremendous improvement over Windows NT 4 Server. But by no coincidence, Sun Microsystems Inc.'s Solaris 8 for both Intel and Sparc also began shipping in February—see our story and interview with Tom Goguen on page 5. Linux is accumulating corporate supporters the same way second-graders collect Pokémon cards—see story on page 10.

(We don't want to slight the other Unix platforms, Novell Inc.'s NetWare 5.1 or IBM Corp.'s OS/2 Warp Server, but frankly, the most rapidly evolving enterprise platforms are Windows, Solaris and Linux.)

Which server platform to develop for? Windows 2000 offers easy-to-use development tools, off-the-shelf hardware and tight—very tight—integration with the desktop. Solaris offers extreme scalability. Not only is Linux open source, but it also has attracted wide-ranging support from many vendors, including Sun itself. The only major player who scoffs at Linux is Microsoft.

Only one fact is certain: Given the complexities of creating portable code for both the Windows and Common Object Model platform on one hand, and Unix/Linux and CORBA platform on the other, it's a decision that needs to be made with extreme care.

It's an Ad, Ad, Ad, Ad World

It's bad enough seeing advertisements on Web pages. But ads in your applications software? As reported by Lisa Morgan on page 14, the latest trend is to embed advertising links into client applications using tools from up-and-coming companies like Aureate Media Corp. or Conducent Technologies Inc.

On one hand, that's good news: Vendors are developing alternative revenue streams, which might allow them to offer full-featured applications for free or for reduced cost.

But the bad news is: Your employees are trying to do a job. To protect them, your company doubtlessly stops salespeople at the door and won't allow them to canvass your busy employees while they're working. Should embedded advertisers be afforded special privileges and 24x7 access to your staff? Of course not.

If you're developing consumer applications, embedded advertising for your freely distributed software is a good idea, and can provide a valuable source of additional revenue for hot products. But please don't inflict ads on your enterprise customers because, frankly, they won't stand for it. Would you? ∎

IMPROVING OUR TRACK RECORD

The software industry has an abysmal record of bringing software projects in successfully. According to the latest Standish Group Chaos report, the software success rate is 24 percent overall, with numbers even lower for large projects, especially those in the government sector. Overall, failed software projects in the U.S. alone cost us $75 billion during 1998.

WILLIAM ROETZHEIM

According to a recent Robbins-Gioia survey on the key project management challenges and trends facing the program management industry, 90 percent of the surveyed companies said they often underestimate their project's size and complexity. Forty-four percent said they have cost overruns of 10 percent to 40 percent, and only 16 percent said they consistently meet scheduled due dates.

For too long, this has been IT's "dirty little secret." But the cat's out of the bag. Suddenly, corporate strategies are intimately tied to software project success, and the failures are making front-page news in publications such as *USA Today* and the *Wall Street Journal*. When your project falls behind, don't be surprised if the next urgent phone call is from your CEO and CFO and they are demanding answers.

Capers Jones has made several thorough studies of the factors under your control that can help you to avoid those nasty project failures.

His finding? Consistent use of formal software cost-estimating tools gives you the biggest bang for the buck, followed closely by tools designed to track and manage software quality. In fact, using estimating tools roughly doubles the probability that your project will be successful, and using formal quality-management tools doubles the probability of success a second time.

The Standish Group pointed out formal cost estimating as critical to project success, stating: "Countless times during focus groups, project group therapy sessions and failure postmortems, IT executives echoed, 'We did our best estimate, we doubled it, added some more, and we still missed the mark.'" Unfortunately, Jones also noted that a mere 19 percent of software project managers use formal estimating tools compared with 28 percent who use defect-tracking and other quality-management tools.

The good news is that because of their high impact on project success rates (and the huge direct and indirect costs associated with project failure), the return on investment (ROI) for cost-estimating tools can be quite large.

Jones calculates the ROI to be as high as 25 times over four years for a typical company buying a typical cost-estimating tool in the $2,500 range. The ROI phases in over time, with some returns up front, but the greatest returns appear after the tool's been in use for two years.

Similarly, Jones estimates the ROI for a cost-estimating tool, costing perhaps $500, to be 37 times over four years, again, with the bulk of returns kicking in during Year Three.

Although the newfound visibility of software projects is somewhat intimidating, it also presents us with a golden opportunity to improve the way we build software.

The heightened visibility and importance of software projects means that taking concrete steps to improve our processes, tools and skills will be supported and result in dividends for us as individuals and for our organizations.

Two of the most important areas requiring immediate focus are formal tool- and model-based software cost estimating, and software quality and defect management. ∎

William Roetzheim is founder and CEO of Cost Xpert Group (www.costexpert.com), a subsidiary of Marotz Inc., which makes software cost-estimating tools and offers training and consulting. Reach him at roetzheimw@marotz.com.

COPING WITH THE LACK OF QUALIFIED PROGRAMMERS

If you were to ask a roomful of software development managers what the most challenging issues they face are, what do you think would be the most common answer? There's no doubt you'd get a myriad of responses. But I'd be willing to bet that a good deal of them would say that one of their most daunting tasks is finding enough qualified programming professionals.

It's no secret that there is a nationwide shortage of programming talent these days. If nothing else, Y2K made us realize that. So how do software development companies find qualified programmers? It's not that there aren't any programmers out there. It's just a matter of finding them quickly and affordably, when you need them.

Getting involved with the academic community, on both the high school and college level, is an excellent way to create inroads to young technical talent.

I'm not talking about just recruiting—but developing relationships with teachers, professors and department chairs and making agreements to have your product taught at their institutions. Sure, it's a sales opportunity. But more important,

DAVID PERKINS

it results in people entering the work force already proficient in your product.

Community and professional organizations are another avenue to finding qualified candidates, partly due to the fact that there is usually a strong link between such groups and local colleges and universities. These groups offer numerous ways to make your company more visible to students in computer science, engineering and MIS who are getting ready to enter the work force.

IS BIGGER BETTER?

How many of you read the announcement by Bill Gates that he was stepping out of his CEO job at Microsoft and becoming Chief Software Architect and thought, as I did, "He must know." Bigger isn't better. In the software development industry, economy of scale is not as important as robustness of platform. At some point we all know that throwing another dozen programmers at a project will hurt, not help, the project. I think Bill Gates' return to his roots as software architect (and Bill, that means we're writing this newspaper for you) is a good sign for developers. In a sense, Bill could be reinventing Microsoft as the World's Biggest Start-Up. How well he will succeed is uncertain, but his track record, plus the inspiration of having the world's most famous programmer willing to roll up his sleeves and code with his people, has got to be incredibly motivational.

Here's another example of where bigger isn't necessarily better: choosing development tools and platforms. One of your most important jobs as a software development manager is to help your teams standardize on various tools and technologies. There is some initial advantage in having four Java debugging tools, three C++ compilers and a dozen code editors deployed throughout the development teams. Programmers can leverage their past experience, and you can build working knowledge of which tools are best for which tasks.

TED BAHR

That's fine for a while, but at some point you've got to standardize to cut down on training and maintenance costs, secure volume discounts, and be able to swap out programmers onto projects in crisis. But standardization does not mean that you must select the largest vendors by default. Bigger isn't…well, you get the point.

Look closely at the development tool landscape. What often appear to be large stable entities are frequently just tool factories stitched together, the founders long gone to top management boardrooms or new start-up companies. The products that were once handcrafted, polished and honed by deeply caring founders and their teams are now handed down from bureaucrat to bureaucrat—well-meaning perhaps—as the vision weakens in the transition and is hammered beyond recognition upon the anvil of greater quarterly profits.

One of our goals at *SD Times* is to help you discern whether industry leaders retain the vision and caring that made the products great—or what their New Vision is and whether you believe in it. For example, Delphi is a great programming environment—but what *exactly* is the vision of Borland/Inprise's former dot-com-IPO President Dale Fuller? What should customers make of the management changes at Rogue Wave? Does Rational, with key people spread all over the place, have the development intensity of having a dozen people in one office, ideas flying back and forth, working 17 hours a day on a Great Dream, on a Vision, a Mission, and on caffeine? Symantec just sold Visual Café to a joint venture from BEA Systems/Warburg Pincus—goodness, what does *that* mean to teams who've standardized on Visual Café?

When does a bigger company mean slick new upgrades and better integration, and when does it mean products compromised by marriages of convenience to inferior sister products?

It's my view that a lot of the great products over the next decade will come from smaller companies, nimble and inspired. There's plenty of money to fund these companies, and it's not just the 20-somethings who are doing it. Many of the Boomers—successful in large companies—are returning to start-ups not in a quest for money but for meaning. As Teddy Roosevelt said in 1899, "Far better it is to dare mighty things, to win glorious triumphs, even though checkered by failure, than to rank with those poor spirits who neither enjoy much nor suffer much, because they live in the gray twilight that knows not victory nor defeat."

It's more challenging than ever before for development managers to select the right suppliers. That means separating the strong smaller companies with wonderful products from the fly-by-night operations, and the large companies with clear vision, caring control and a clear roadmap from those in turmoil and disarray. Couple this with shorter product life cycles and the pressures you face to bring applications out faster and faster, and you have a critical need for information on what's happening across the whole software development landscape. That's why we are publishing *SD Times*.

SD Times is brought to you by BZ Media LLC, a new high-tech media start-up created by industry veterans from Miller Freeman, Ziff-Davis, IDG, CMP and *Newsday*. All of these media companies began or grew rapidly with caring, active, visionary leadership but sold out and are now being broken up, sold in pieces or managed by faceless international conglomerates. It's no surprise that the one exception, IDG, steered by its founder Pat McGovern, is behind *Industry Standard*, the hottest technology trade launch in the past five years.

We don't aspire to be the next *Industry Standard*, *Release 2.0*, *Fast Company* or *Wired*. We simply want to be your favorite newspaper. The only paper that reports on what is happening in our growing, fast-moving industry—the software development industry. We're Luddites of a sort, hoping to bring you the best in handcrafted journalism and reporting on the business of software development and what it means to you.

We borrow from a recent speech by Steve Shepard, editor-in-chief of *Business Week*, in our goal to bring you, "synthesis, insight, context, understanding, and on our best days, something approaching wisdom." Let us know how we do. ∎

Ted Bahr is the publisher of SD Times.

Job fairs, career days, technical seminars and other events these groups sponsor are hotbeds for high-tech job seekers.

In my community, for instance, the Austin Software Council works very closely with the University of Texas and local high schools to make students aware of technical careers in the software industry. This is a blessing in a high-tech town like Austin.

Another approach taken by some companies, Austin's Trilogy Software Inc. for instance, is to "grow your own." What I mean by that is hiring people right out of school who may not have studied computer science in college and turning them into programmers. They might have liberal arts or communications degrees. It doesn't matter. The idea is to take creative people, train them in computer programming and let them channel that creativity into technology.

On the other hand, training can be expensive. So, just as companies turn to the Internet in an attempt to save money and address any number of business issues, providing online technical courses is catching on as a viable way to train employees.

Cost is a major reason, but so is convenience. Online courses can be taken 24 hours a day from anywhere there's access to the World Wide Web. Furthermore, with Internet chat capability, you don't have to lose the ability to communicate one-on-one with the instructor or with fellow students.

It's also a great way to educate the people you haven't hired, but whom you someday might. If a high school or college student is already studying computer programming, free Web-based instruction is a great way for them to complement a formal curriculum. It might also be a great way to get a student interested in programming who might not otherwise be. In the long run, that helps us all. ∎

David Perkins is the president and CEO of Austin, Texas-based Metrowerks Corp., makers of CodeWarrior and CodeWarriorU. Reach him at perkins@metrowerks.com.

GETTING EXTRA MILEAGE FROM THIN-CLIENT DEVELOPMENT

BY KAREN J. BANNAN

Going from an environment of PCs, Windows NT servers and an IBM AS/400 server to one based on thin clients and a single AS/400 isn't easy, but when it means customers will receive faster, more complete service, then Frank Cavallaro, vice president and CIO of the AAA Connecticut Motor Club, will get it done.

Cavallaro, along with his team of four software developers, has been working for almost a year to replace his current PC and server installation with more than 200 thin clients. He's also gearing up to develop custom Java-based software that will make end-user support easier.

"We want to be able to give our members the ability to have true Internet-based operations without having to rewrite our entire system all the time," said Cavallaro.

The company, which provides roadside assistance, travel planning and ticketing, mapping services and special group discounts to its 420,000 members, has installed 60 new Network Computing Devices' ThinStar Windows-based terminals to date, with another 140 to be rolled out. The company started with five units to see if thin-client computing was a viable option for the company and was pleasantly surprised.

"We found ourselves updating PCs every couple of years. We also had to deal with hardware problems, software upgrades and users who forgot to back up their data for six months. With the thin client, everything runs on the server," said Cavallaro.

He also likes the fact that the thin clients have no moving parts that break down, and he can back up user data without end-user participation. "Rather than having a lot of desktops and a lot of servers, we now have a controlled environment that we back up every night. We also never have to visit PCs to rectify problems with conflicting memory locations; everything runs on the server," said Cavallaro.

Cavallaro's main server, the AS/400, runs the Microsoft Terminal Server program, along with custom and canned software that is native to the AS/400. Cavallaro and his team expect to develop Java-based versions of nearly all the company's legacy applications, including point-of-sale software, call receiving and dispatch, customer relations and end-client applications that facilitate the printing of its theme-park tickets, traveler's checks and all of the things AAA sells in its branch offices, said Cavallaro. "Anything that has to do with interactive displays will be developed using Java. The Java screens will be picked up very easily by the thin clients, plus, since Java is Web friendly, we can integrate the applications with the Web," he said.

The first application that Cavallaro expects to design is AAA's call-receiving system because it has to handle a variety of data types, he said. We need to be able to display map data as well as text data to help our members receive faster emergency service. Java can display both readily in a consistent manner," said Cavallaro. "Java just presents a more standard presentation style."

The call-receiving system helps route AAA emergency roadside service trucks to members in distress. A Java-based application will let dispatchers send detailed maps and directions to the company's garages, making it easier for drivers to locate motorists.

AAA Connecticut Motor Club isn't alone in developing Java-based software on thin clients. Today, there are 1.2 million seats of Java installed worldwide, an increase of 168 percent since 1996, according to an International Data Corp. study titled "1999 Worldwide Professional Development Model." The study expects a total of 3.5 million installed seats by the end of 2002.

"Java development on thin clients is a huge trend," said Rikki Kirzner, director of market-research company International Data Corp.'s Application Development and Deployment Research. "Java is finally both mature enough and has enough security built into it so it can achieve the end results that people originally migrated to it for. Developers can play on a variety of different platforms and still ensure compatibility in heterogeneous environments," she said.

AAA's Cavallaro is in the process of training his four software developers on Java, and said he expects to have all 200 of the new thin clients installed by midyear, with full Java implementation expected within two years. "There will be a learning curve [for the software developers], so that's why this is a long-term project for us," he said.

In the meantime, Cavallaro is pleased with his decision. "Things are progressing steadily. We're already working with American Airlines, bringing the ticketing software that they have developed for the thin clients into our organization. It's really going to reduce our overhead costs," he said. ∎

THIN CLIENTS THE JAVA WAY

Developing for thin clients isn't as cut and dried as many would like. We spoke to Joshua Kerievsky, founder and president of Industrial Logic Inc., a San Francisco-based nationwide consulting and software development service, about the future of Java.

SD Times: What benefits does developing with Java have for the thin-client platform?
Kerievsky: Thin clients process and display information by interacting with remote servers. With other languages you usually have to cobble together expensive and diverse technologies to make these remote interactions possible. With Java, you can have thin clients interact with remote servers in a variety of ways—and all the software to do this is free. In addition, Sun has been very smart about making it easy to run Java on a wide variety of devices—from handhelds up to the most powerful computers. Using various free Java libraries, developers can maintain small thin-client programs that can execute on widely disparate devices.

Are there any limitations on development for thin clients?
Yes, when Java runs on a thin client, it runs on what is called a Java Virtual Machine. Experienced Java developers know that not all these JVMs execute exactly the same way. Thus, a thin client might look or behave one way on one machine, and slightly differently on another. This is still a lot better than having to write separate programs for each device. But it does mean that you have to thoroughly test your Java thin clients on the devices or machines where you intend to run them.

How does developing for thin clients differ from other Java development projects?
Since thin clients spend a lot of time interacting with remote servers, you have to be smart about how to minimize this interaction so that users aren't always waiting on information to process or display.

What is going on in the Java tools space? Are there any new developments?
As Sun continues to aggressively add new APIs to Java, vendors are doing all they can to keep up. So the tools are becoming more mature, offering better wizards, better debugging capabilities and better integration with database products and remote object technologies like CORBA.

What's the biggest barrier to entry for Java developers today?
There is still a learning curve. Java isn't nearly as hard as learning a language like C++. But the learning curve is there. In particular, since Java is an object-oriented language, there are important lessons to learn about how to effectively design and develop objects. Too often people think they just need to know the Java syntax, without understanding objects. My company eases both the Java and objects learning curve by mentoring people on successful design patterns for developing objects in Java.

According to an IDC Research report, there are more than 1.2 million Java seats today, an increase of 168 percent since 1996. What do you think is the main reason for such explosive growth?
The word is out—companies are having great experiences with Java. It is far easier to learn than C++, a heck of lot better than Visual Basic, and a language that really does run on many diverse platforms.

For years, people knew that object-oriented languages were far better for writing software than non-object-oriented languages. But managers were afraid of C++, since they heard that it was very hard. All of that changed when Java came along. Java simply made object-oriented programming possible for the masses of programmers worldwide.

What are some of the types of tools and environments that are most common and why?
Many programmers either use an IDE [integrated development environment] or just a programmer's editor and the JDK [Sun's Java Development Kit]. IDEs tend to be good for programmers who are at a beginner or intermediate level. The only exception to this is IBM's Visual Age for Java, since it provides some incremental compiler technology which can dramatically speed development. I know many pros who use it.

On the other hand, many intermediate and advanced programmers use sophisticated and mature programming editors, like Multi-Edit for Windows, or Visual Slick Edit. These editors are designed to work with languages like Java, as well as many of the other languages which developers program in, like HTML, SQL, XML, Perl and so forth.

What is Java's biggest strength (aside from the write once, run everywhere aspect of the language)?
Ease of use is Java's biggest strength. Average programmers can become productive in Java in a short amount of time, and by using Java's rich array of technologies and resources, they can rapidly program some seriously useful pieces of software.

What is its biggest drawback?
Speed is an issue. Most of the C or C++ die-hards stay away from Java because they perceive it to be slower than their C or C++. But new technologies are making Java faster and faster. It is likely that very soon, Java will be as fast if not faster than C or C++.

What can we expect to see over the next 12 months?
Continued widespread adoption of, and reliance on, Java in all areas of software development. –*Karen J. Bannan*

Java's biggest strength is its ease of use for rapid development, according to Industrial Logic's Joshua Kerievsky.

Conducent

Conducent is proud to provide software developers and publishers with award winning technology and services that dynamically deliver and display advertising in software products.

When you choose Conducent, you enjoy opportunities to:

Generate Revenue

Increase Distibution

Increase Customers

Advertise to Millions

Daily Product Usage Reports

Excellent Customer Service

Superior Technology

Quick and Easy Integration

Simply download our technology and follow the QuickStart guide for fast and easy integration.

Contact Conducent today!

bd@conducent.com
703.326.9839

www.conducent.com

Conducent

Advertising in Software

Earn $2,000 Now!

NEW TOOLS FOR THIN-CLIENT DEVELOPERS

BY KAREN J. BANNAN

Once dismissed as obsolete technology, thin-client computing has come back into favor, a fact supported by a deluge of new product announcements and deals that will keep software developers busy for months.

Sun Microsystems Inc. in January named WRQ Inc. (www.wrq.com) as the provider of software and support for its Solstice Network Client and Solstice NFS Client products.

WRQ publishes Reflection Suite, a software suite that helps users integrate PC desktops with Unix-based Solaris file servers.

"WRQ is focused on providing customers with the best PC-to-Unix integration solutions possible with Reflection Suite for X," said David Hebert, WRQ's group marketing manager for Reflection. "We are proud to be selected by Sun to provide WRQ solutions that meet the high demands of their customers, and we can provide customers with PC/Unix cost-saving connectivity features such as centralized administration and deployment, as well as other tools that simplify the integration of Unix applications and graphics with PC desktops." Reflection Suite for X and Reflection NFS Client are currently available.

Also in January, Cisco Systems Inc. (www.cisco.com) launched the latest version of its Java client for computer telephony integration desktop applications in the Cisco ICM software environment. The thin client lets users deploy agent-based desktop functionality using a Web browser.

The ICM software manages voice and data distribution across an enterprise, and allows users to use IP-based software and solutions using existing infrastructure, said Jane Eisenberg, director of marketing for the Customer Contact Business Unit in Cisco's Applications Technology Group.

"The Java client supports this trend by enabling a company to implement a purely IP-based contact center infrastructure, said Eisenberg. "At the same time, like all Cisco ICM applications, the product supports a traditional TDM-centric environment. This approach enables Cisco to offer customers a well-defined migration path that lets them implement new-world applications at their own pace based on their business objectives."

The software is compatible with any desktop application written with the Cisco Java client and supports operating systems or browsers that are compatible with version 1.1.5+ of the Java Virtual Machine (JVM).

The software is currently shipping.

In January, Boca Research Inc. (www.bocaresearch.com) announced a new Java network terminal, called the BocaVision JNC205 Java Network Terminal, which ships with a customized Linux operating system and a full implementation of Infomatec's Java Network Technology (JNT).

The BocaVision terminal ships with the WT120 Ethernet-based Windows terminal, the STB121 dial-up client, and the DTC203 Windows-based terminal, which runs the Windows CE operating system. The terminal supports the Citrix Independent Computing Architecture (ICA) and Remote Desktop Protocol display protocols, allowing it to function as if Windows-based applications are running locally instead of via a server running the Microsoft Windows NT Server 4.0 Terminal Server Edition.

The DTC203—which ships with a National Semiconductor Geode GX series processor with 32 MB of RAM, a PS/2 keyboard and a mouse—supports the TCP/IP network protocol and a variety of terminal emulation modes, including 3270, WYSE60, ANSI, AT386, VT320, BA80 and SNI97801 (7-bit, 8-bit). The BocaVision JNC205 is shipping now with a street price of $699.99. ∎

Metro Link
Powering the Digital Appliance Revolution
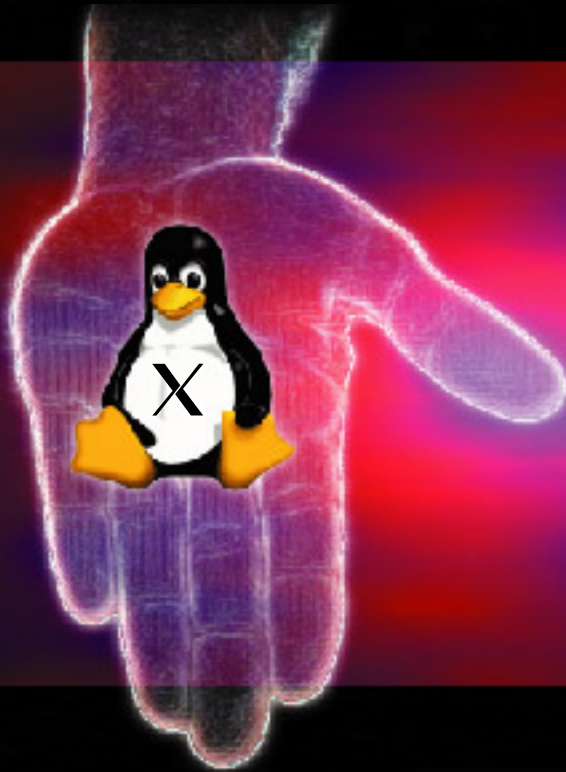
MICRO-X

Maximum Power
Minimum Size

- **Small, scalable, static X Server**
- **Specially built & stripped for precise needs**
- **Perfect for embedded systems**
- **Ideal for consumer electronics industry**
- **Includes Fast Light Tool Kit (FLTK)**
- **FLTK is based on C++**
- **FLTK includes a User Interface Builder**
- **Output is editable C++ source code**
- **Supports X11 Double Buffering Extension**
- **Available for:**
  Linux/x86, Linux/Alpha, FreeBSD,
  BSDI, LynxOS, & QNX

METRO LINK
MOTIF COMPLETE!
The ULTIMATE Motif for Linux

- **3 Versions of Motif on 1 CD**
- **Multiple Development Environments**
- **Mix & Match Modules with Graphical Installation**
- **Includes Motif Ver. 1.2, 2.0, & 2.1**
- **Supports both glibc & libc5**
- **Glibc 2.1 ftp update available**
- **Available for:**
  Linux/x86, Linux/Alpha, FreeBSD & BSDI

METRO-X
A reliable, easy-to-install, high performance X server for Linux

- **Graphical Configuration Utility**
- **Touch Screen Support**
- **Multi - Screen Support**
- **3D Input Device Support**
- **Robust & High - Performance X Server**
- **Available for:**
  Linux/x86, Linux/Alpha, FreeBSD, BSDI, LynxOS, & QNX
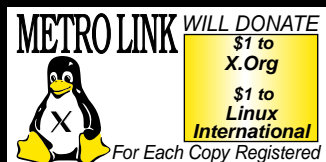
METRO EXTREME 3D
Hardware accelerated OpenGL ®

- **3D Hardware Support**
- **High-Performance Accelerated Implementation of OpenGL**
- **OpenGL Conformance Test Certified**
- **Includes a Free Copy of METRO-X**
- **Available for:**
  Linux/x86, Linux/Alpha, & FreeBSD

METRO LINK WILL DONATE
$1 to X.Org
$1 to Linux International
For Each Copy Registered

Metro Link

5807 North Andrews Way, Ft. Lauderdale, FL 33309   (954) 938-0283 FAX (954) 938-1982   e-mail: sales@metrolink.com http://www.metrolink.com

The Future of Development –
It's in the Palm of Your Hand

SD
2000

Software Development Conference
   March 19–24

Expo
   March 22–24

San Jose Convention Center, San Jose, CA

www.sdexpo.com

Contact Us for Information & Registration
800.441.8826
415.905.2702
sd2000@mfi.com

The software industry changes with the snap of a finger. E-business and the Internet are driving the need to make "Rapid Development" a reality. Can you get a handle on all the changes? Is there a solution at hand?

It's all within reach at SD 2000-the software industry's defining event. SD 2000 draws the elite. It's where you'll shake hands with the visionaries, innovators, and tool developers who built the industry and are guiding it into the Internet Age.

Grasp new information and make the right connections at:
Open-forum technical training • In-depth Courses • Peer networking activities • Roundtables • Hands-on design clinics • $1/2$- to 3-day Tutorials • Technical tool demonstrations • Social events • Keynote presentations

Make your plans today to explore the platforms, languages, and technologies that are shaping the future of development for the e-generation.

Don't let it slip through your fingers. Grab hold of the future today. Register for SD 2000 now

Navigating the Complex ASP Landscape

Developers hoping to reap model's benefits shouldn't go solo

BY MARIA DEGIGLIO
AND WALTER SCHWANE

Over the past six to nine months, a great deal of information about application service providers (ASPs) has proliferated over the Web, and everyone is talking about this new model for application service provisioning.

The ASP model promises many business benefits to software developers, services providers and their customers. But the ASP environment is very complex—and not to be underestimated. Deriving business benefits will not be easy for ASPs, network and IT service providers, and especially for end customers.

What exactly is an ASP? In a nutshell, ASPs offer subscriber-based software and a set of associated services that hold the promise of relieving the respon-sibility, and hence the headache, of running everything from e-mail to enterprise resource planning (ERP) in the IT shop. ASPs could be designated as providing hassle-free software for rent. The question is, at what price?

If you are a software developer who is considering extending your applications for this model, a service provider who is contemplating providing the IT and network infrastructure for ASPs, or a customer trying to determine if you ought to utilize the services of an ASP, our advice to you is not to go it alone.

As an individual, you're probably already using a Web browser-based application service and may not have even thought of it as such. E-mail provided by Web portals like Yahoo and Netscape's NetCen-ter is one example. Online stock portfolio tracking, with real-time market updates, is another example. Your reasons for choosing applications like this are pretty straightforward—they provide something you need, they save you time and money, and the ubiquitous nature of the browser interface lets you get at your data from anywhere. (We won't get into the sometimes annoying banner ads and less-than-desirable performance that detract from the usability of applications running in a Web browser.)

The business and technical reasons for going with ASP-provided software are analogous, but a bit more complex. It is necessary to understand that ASP models are not created equal. The most common is the rental of services from ASPs, which include applications, hardware and network services. Others may require you to pay for application modification, systems management and other services. The centerpiece, however, is the application and the ability for a company and its users (like employees, customers or business partners) to be able to access that application under an agreed-to set of terms. This is what service-level agreements are all about.

The compelling reasons for customers to rent software and associated services are many. For one, IT shops cannot do it all. The backlog of new application development, software acquisition, customization and rollout can't keep up with business demands. People with IT and programming skills are difficult to find, and even more difficult to keep. IT departments are being asked to do more even as IT budgets for hardware and software decrease, and they face network bandwidth problems in the face of mounting requirements on the use of these resources. As the infrastructure grows, the complexity of managing it increases. And, there is the problem of managing software upgrades, maintenance and backup in a 24x7 business environment.

IT shops, many of which already are lean and mean, must try to do all of the above and still keep up with the day-to-day demands of running the business. The potential customer will be very interested in the ASP who provides the capabilities that address these issues.

SHOULD SOFTWARE DEVELOPERS MOVE TO AN ASP MODEL?

Software developers who are considering the move to an ASP model will encounter complex and not-so-subtle traps in the development process. This is because for 20 to 30 years, applications have run in a captive environment. It is only recently that the Internet has penetrated these hermetically sealed environments. Software developers will face many complex issues as they migrate to the ASP environment.

Just Web-enabling the application is not good enough. Back-office application interfaces to the Web must be reliable, efficient and isolate one customer's users from another's. Release boundaries have changed dramatically. No longer can anyone perform one or two release upgrades in a year. In the ASP environment, release upgrades will need to become dynamic, and there is the potential for several releases of the same application to co-exist. This may not be the norm in your current IT environment.

There can be a performance impact when the application is running in browser mode. This is a "gotcha." Performance hits can occur even in the most efficiently run environments. What will such a hit cost you and your customers who are depending on you to host/serve their sophisticated ERP applications? This is one area in which there can be potential customer dissatisfaction—and that could cost you the contract.

While some ASPs may choose to host applications on their own premises, others may not. IT service providers and network service providers may help ISVs make the leap to ASPs by taking the worry out of who's minding the network, hardware and entire operations infrastructure. In the same vein, ISPs and telecommunications companies are also positioning themselves to compete in this arena.

In this emerging market, perhaps the most important role of an ASP is to provide a single interface and source of feedback to the customer related to software upgrades and service, helpdesk, IT operations/administration issues, and performance.

The ASP's client must have a single point of contact and cannot be put in a position of looking for an unknown number of needles in a haystack when a problem arises. The ASP that provides this level of service will be successful.

Critical success factors for ASPs include:

- Providing subscriber-based application usage. ASPs will need to serve applications from their data-processing facility to several other companies.
- Working with ISVs to expand the roles of application developers. ASP operators and administrators must address the needs of several companies simultaneously.
- Ensuring that the ASP's IT shop provides all services to all customers in a manner that keeps each customer's assets isolated from other customers' assets.
- Managing data, including secure processes, data integrity, backup, recovery and failover capabilities. These are high-impact differences for ASPs because if they are also hosting the servers, they need to provide reliable available systems. And, they are ultimately responsible for performing the recovery of application data for their customers. Unplanned outages must be avoided; but if they occur, then outages must be isolated from other customers.
- Delivering services that include administration, handling of customer problems, custom Web pages and customer-based testing. This will require service and helpdesk policies and processes.
- Providing a range of application capabilities, from standard out-of-the-box applications to customized ERP applications. This includes applications ranging from e-mail and Microsoft Office to e-commerce applications to industry vertical applications to entire ERP suites. Contracts in this space typically endure for 18 to 36 months. In addition, the ASP must maintain, service and up-

---

HOW IT WORKS

The diagram shows the key elements of an ASP infrastructure, consisting of the following major services:

- The ASP Portal, which is the ASP customers' integration point for all of their business solutions independent of who supplies them. An ASP may not supply all of the ASP customers' business applications. Customer workloads will most likely be a mixture of internally supplied business solutions and externally supplied solutions.
- The ASP Customer, which is the client of the ASP, accesses the ASP through a Web-based portal on the customer's home page. This portal will be supplied by the ASP and customized by the customer with the help of the ASP.
- The Application Service Provider, which supplies the application, hardware, software infrastructure and associated services for use by the customer.
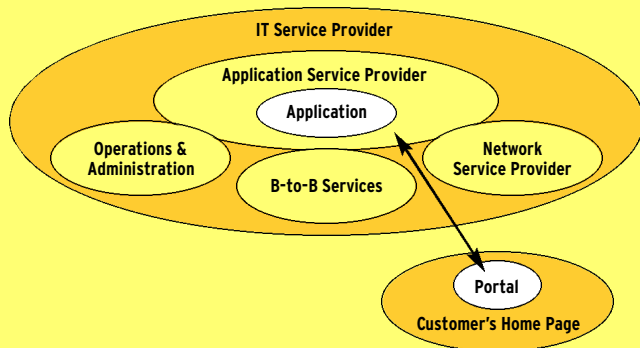
- The IT Service Provider, which provides operations- and administration-only data-center services, including systems management, network access and uninterruptible power supply for the ASP. This provider ensures that the application is available 24x7 and that the ASP Customer's business information is protected at all times.
- The Network Service Provider, which provides the Internet backbone to the ASP and IT service provider.
- Back-Office Business-to-Business (B-to-B) Services, which are an integration of multiple applications housed at different locations. This type of solution hides the complexities of these business applications from the ASP customer. The ASP customer sees them as a multipart application.

ASP

grade applications. The ASP must also provide for managing license and entitlement agreements both from the software providers to the ASP, and from the ASP to its customers.

· Managing their service-level agreements. The application's availability, reliability and performance must be tracked, reported and meet agreed-to service levels. Behind this is the ability to manage resources and maintain acceptable performance levels of the systems and the network—much of which is now out of the ASP's control

(a difference from the older service bureaus with their private networks). Application-based performance data that measures response time and transaction throughput is required; it is the basis for chargeback, using tools that accurately identify resource usage for billing.

· Providing for balanced system resources centered on the individual customer's use of the ASP application set. ASPs will need to implement the system topology and configuration of both hardware and software, including change management procedures and inventory management. In addition, ASPs will need to monitor the health of the infrastructure and the applications at all levels, which will be key to achieving their promised service levels.

The press not only has been detailing the emergence of ASPs, it also has spotlighted the wheeling and dealing and positioning among major players in the industry. The following are just some of the initiatives that have been launched

to gain a stronghold in the ASP space. IBM Corp. announced a new major initiative called ASP Prime, a program for helping ISVs launch their applications into the ASP space. Sun Microsystems Inc. has created a certification program that sets criteria for application hosting and associated services.

Key ASP players have met Sun's requirements, including USinternetworking Inc., Exodus Communications Inc., Corio Inc. and Digex Inc. Microsoft Corp. launched a plan to rent its Office desktop software, in which Office applications reside on servers belonging to a service provider, and users are charged based on usage. Microsoft and Compaq Computer Corp. have invested major bucks in Digex, a significant ASP. This investment represents a joint effort to deliver and market application hosting services. Cisco Systems Inc., Lucent Technologies Inc. and Nortel Networks Corp. are forming strategies to deal with anticipated increases in network traffic.

Also, the emergence of ASP

portals like WebHarbor.com and an ASP industry consortium is signaling that the ASP movement is gaining momentum in the market.

The ASP environment is complex and will be hostile for the unprepared. The best advice we can provide to software developers, service providers and customers is that all three will require a partner with experience and expertise to guide them safely down the ASP path. ■

Maria A. DeGiglio, mdegiglio@ dhagroup.com, is a senior industry analyst for D.H. Andrews Group Inc. and is currently the Industry Analysis Team's Project Leader for the ASP Practice.

Walter Schwane, wschwane@ dhagroup.com, is a consulting software engineer for the Rochester Technology Center division of D.H. Andrews Group Inc. and develops ASP architecture and design.

The authors would like to thank James Walts for his contribution to this article.

NewMoon Rising to ASP Challenges

Start-up offers mass B-to-B services

BY KAREN J. BANNAN

As more application developers look to take their software onto the Web, hosting services that allow them to become application service providers (ASPs) will become more important. NewMoon.com, one of the first of these emerging companies, is already turning code into hosted applications.

"We call ourselves an ASP infrastructure provider. We provide software developers with all the infrastructure pieces that allow for registration and customer billing so we can really provide a turnkey service," said Marc Lowe, president and CEO of NewMoon.com.

The company's product, called New Moon Hosting Service, combines directory-based software and servers so developers can deliver applications commercially over the Web.

NewMoon.com hosts software on its servers, which are housed at AboveNet Communications Inc. and Exodus Communications Inc., translating into high-bandwidth connections for its hosted companies—and an immediate revenue stream, said Lowe.

Lowe said his company can host any kind of software program for distribution. "In the beginning, we even went down to CompUSA, bought a few different software packages, loaded them up on our servers, and threw them up on the Web, just so people can see that we can make anything work," said Lowe. "Of course, since that's probably pretty illegal, we don't resell any of that software. It's just a way to show people we can do this," he said.

NewMoon.com is different from many other services in the space because they are specifically targeting the mass business-to-business and business-to-consumer marketplace. Most of NewMoon.com's competitors are providing software distribution within a company's intranet.

"If you're inside of an intranet, you have to stitch together ways to balance workloads. You also don't have to worry about registration and authentication," said Lowe.

Sybase Inc. recently licensed NewMoon.com's application delivery technology as the foundation for its PowerBuilder Web Deployment Kit.

"We've been using NewMoon's application delivery software in our PowerBuilder Web Deployment Kit (WDK) since April 1999," said Raj Nathan, Sybase's vice president and general manager, Internet Applications Division, in a statement.

"Their technology enables our customers to quickly deploy PowerBuilder applications to browser clients without having to rewrite them. Because WDK uses the same technology as New Moon Hosting Services, our developers are afforded a new opportunity toward becoming an ASP with New Moon," said Nolan.

In the future, said Lowe, NewMoon.com's business model will help in the distribution of software in emerging marketplaces like China.

"In countries where software piracy is very high, we provide a model that helps to eliminate some of these problems," he said. ■

LINUX

with support from major platform vendors and software companies will result in a new, more advanced phase of Linux development and adoption.

In addition to the January announcements covered here, several others followed at the recent Linux World Expo. The timing of this Linux blitz could not have come at a worse time for Microsoft, which has delayed the launch of Windows 2000 in favor of a more stable release. If Windows 2000 is as great as Microsoft has led the industry to believe it will be, it may serve as a setback to the adoption of Linux in the enterprise. If Windows 2000 needs to be shipped with a case full of bug spray, Linux is in a good position to seize precious market share.

Exactly how pervasive is Linux? According to Kusnetzky of IDC, there's no real way of knowing. "We can't track free copies," he said. "We can track the number of purchases, but there is no way of knowing how many copies are made when the license covers an unlimited number of users. There are 140 different distributors of Linux,

but only 10 are acting as volume software distributors."

NEW SERVER, TOOLS FOR LINUX

TurboLinux has announced the release of its new TurboLinux Workstation and TurboLinux Server 6.0 versions and general product availability at 3,000 stores in North America.

The new products are based on the Linux kernel 2.2.13 and include more than 200 new or updated packages and programs.

With a suggested price of around $200, Server 6.0 is designed to work as a secure, high-performance back-end server for business workgroups. It includes an e-commerce suite and shopping-cart program along with backup software. Preconfigured install options enable users to set up servers with a set of network connectivity tools that integrate TurboLinux servers into almost any IT environment. TurboLinux Workstation, which sells for around $50, includes Sun's StarOffice suite and Netscape Communicator.

Linux hasn't shattered Windows yet, but the rocks are being launched. ■

Walden Weeds Out Job Applicants

Online tests offer employers way to speed job-selection process

BY REBECCA ROHAN

Walden Personnel Testing and Training Inc. of Montreal is making it faster and easier for employers to find the right candidate for IT positions by offering validated tests via the Web. The tests are manually evaluated, with in-depth results sent to the employer via e-mail. Walden's niche is high-end in-depth assessment.

"The quick and dirty five-minute IQ or clerical test is much more prevalent on the Net," said Stephen D. Silver, Walden's founding partner and president. Walden's tests can take an hour or more.

Founded in 1977 with paper-and-pencil pre-employment tests, the private company (www.waldentesting.com) sells employers assessments of skill, aptitude and knowledge in many fields, including IT, sales, customer service, clerical, administrative and management. "We have a valid test for just about every job," said Silver, though Walden's roots are in IT.

Testing over the Web represents a small part of Walden's business as yet. "Most clients prefer paper and pencil," said Silver. "It's a little easier to test 20 people at a time—you don't need 20 PCs set up. Where there's a need for the benefits of testing over the Web, people ask for it."

Test prices vary from about $100 to roughly $800 plus options, and the employer buys one test or test usage per candidate. The $225 Programmer Analyst Aptitude Test one-hour Internet version prescreens both seasoned candidates and people without experience in data for the ability to program and to analyze business problems. Walden won't sell tests to candidates, schools or recruiting agencies. When an employee leaves a job and a new employer wants the same test performed, the candidate can report his score, if it's known to him, ask his old boss for a copy, or retest when the prospective employer pays for a new assessment. Walden then grades the test against repeater norms so the candidate stays on even footing with his fellow applicants.

Employers get a detailed evaluation of each person's fitness for the job with a 24-hour guaranteed turnaround, or op-

tional Rapid-Response turnaround of one hour. Validation studies are available to show the degrees of predictive value for various tests. "All are of benefit in the hiring procedure," said Silver. "They supplement other methods of assessment, such as resumes, interviews and reference checking. Testing is an additional tool to help make the hiring decision. It provides an insight that you can't get from any other method," he added.

"Often a candidate comes for a job and they're not physically appealing, yet they might be brilliant," said Silver. "Programmer Analyst measures programming aptitude and analytical aptitude independent of education, training and background."

Stephanie Brown, data processing manager for the state of California, within the Employment Development Department's (EDD) IT section, was having difficulty getting mainframe programmers to apply for state jobs in the competitive 1998 market. Applicants came with academic training and no experience. "We would train them if we could recoup our investment," said Brown, "but there was nothing to judge their

competency or aptitude… Some of the smartest people in the world can't program."

The selected people would get eight weeks of intensive programmer training, then be brought back to an on-the-job training. It was an expensive proposition, and determining aptitude was the key. Brown found Walden and competitor Psychometrics Inc. (www.psy-test.com) on the Web and chose Walden.

"We put out a job flier that we were hiring EDD employees who knew nothing about programming but who had to be permanent employees. There were 320 applications for 10 to 12 jobs," said Brown. The state bought aptitude tests for all the applicants.

"We looked at the buckets the people fell into (below or above the cutoffs established in advance) and found 31 people. We also opened the process through the state of California and got a few from outside. From that point on came interviews, and we offered positions to 13 people," said Brown.

"What was clear right up front," she said, after looking at test results, "was that some really sharp people in pretty high positions didn't get inter-

viewed." Brown was surprised by some of the people not chosen. "We didn't tell them their scores," said Brown, but told applicants ahead of time interviews would be awarded based on those assessments. "It's totally objective."

Brown was thorough with checking references and inter-

views. The project has been a success. "We did everything right in this, but I think starting with the right people was the key. These people would have excelled no matter what their training, but the question is, 'Would we have found them?'"

Walden plans to put more of its tests on the Web. ∎

VISICOMP'S FIRST TOOL 'SEES' INSIDE SOFTWARE AT RUN TIME

As a Java developer, Ron Hughes was growing frustrated. There was no way for him to see what was going wrong in an application while it was running. He would have to wade through hundreds of thousands of lines of code to try to get an idea of what was going on.

So in April of last year, he started a company called VisiComp Inc., which has now rolled out its first product: VisiComp 1.0, a software visualization tool. According to Hughes, VisiComp 1.0 enables Java developers to actually view the structures of programs as they

evolve on the screen at run time.

What has surprised Hughes the most is that no one, he claims, had created this type of tool before him.

"People are used to doing things the way they always have done them," Hughes said. "If everybody was blind, no one would say we can't see what we're doing."

While people have responded to VisiComp 1.0 by saying it's a debugging tool, Hughes points out its importance for maintenance.

"A lot of time, perhaps 75 to 90 percent, goes into maintaining existing code," he said. "Each version [of an application] is based on the preceding version. The guy who designed Word 1.0 is probably gone. So new hires have to go through a mountain of lines of code and wonder which structures are significant and which aren't. With a visualization tool, he can

Focus on maintenance, believes VisiComp's Ron Hughes.

see the machinery dynamically."

VisiComp is written in Java, Hughes said, because it is a strongly typed language. Also, it allows the product to be used across many platforms.

VisiComp 1.0 employs a sharp, easy-to-use graphical interface with fields being updated automatically as the program is running.

With configurable scaling and filtering features, programmers have complete control over the display of objects and variables.

VisiComp 1.0 is available for purchase from the company's Web site (www.visicomp.com) for $495, which includes one year of free upgrades and e-mail technical support.

With this tool, Hughes said, a developer "can see inside, can see the wheels going around."

Just like the wheels inside Hughes' head. ∎
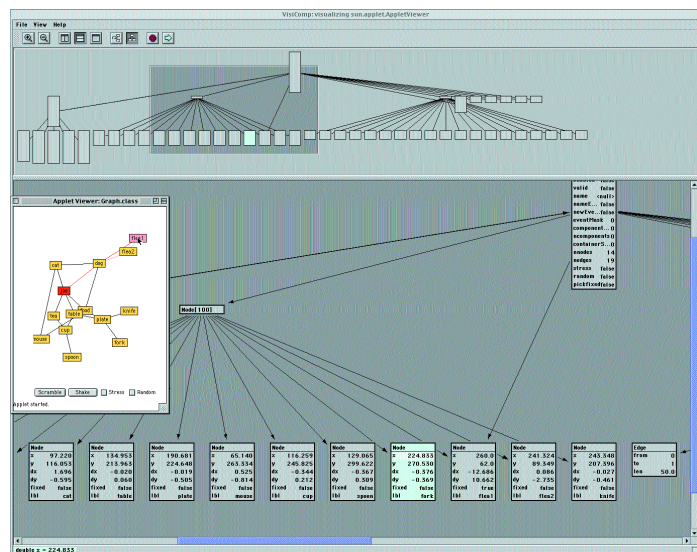
VisiComp displays the structure of Java programs at run time.

Commerce One Updates XML Tools

BY LISA MORGAN

XML application development got a boost as Commerce One Inc. released the XML Development Kit Pro. The XDK Pro enables XML-to-JavaBean translation and is the basis for a watershed of e-commerce applications and portals being announced by companies such as General Motors, Guess Jeans and Marriott. The XDK Pro is the latest in a series of XML development products and solutions from Commerce One that also includes a schema language, XML documents and object-oriented components. Commerce One developed these tools for its own use, as well as to ignite a general explosion of XML-based e-commerce systems.

"We couldn't find the tools we needed, so we built our own and then submitted the technology to industry working groups for consideration," said Kyung Kim, XML product manager at the Walnut Creek, Calif.-based e-procurement company. "Interoperability between documents and applications is essential for the widespread adoption of XML."

The XDK Pro is an extension of the XDK that Commerce One made freely available in December 1999. The XDK Pro is object oriented, enabling XML-to-JavaBean translation using an XML-to-Java programming model and the Simple API for XML (SAX) event-driven programming model. It also includes a parser that validates both Document Type Definitions (DTDs) and Schema for Object-Oriented XML (SOX). According to Kim, there were 1,800 downloads of the XDK (the more limited free version) between its release in December 1999 and the first week of January.

Prior to releasing the XDK and XDK Pro, the company developed the SOX schema language, which has been submitted to the W3C for consideration. Commerce One subsequently released the Common Business Library, a document framework and XML document repository that launched with 11 predefined documents that developers can use as is or extend.

Regrettably, there aren't many comprehensive tool kits like Commerce One's XDK Pro, but that's starting to change. Microsoft Corp. and Sun Microsystems Inc. are working on Java and BizTalk solutions, respectively, with the likes of Commerce One, industry groups and other companies. Industry initiatives such as the W3C's Schema Working Group, OASIS and ebXML are working quickly on XML standards that should help pull together the otherwise fragmented state of XML.

"The problem with XML is that everyone has been developing proprietary solutions, which means a lot of redundant efforts and interoperability problems," said Bob Glushko, director of advanced technologies at Commerce One (www.commerceone.com). "There are vertical market solutions and XML solutions that work within a company. We've all come to the conclusion that [proprietary solutions aren't] providing anyone with a competitive advantage. That's why 200 people showed up at the

Proprietary XML solutions are the problem, said Commerce One's Bob Glushko.

first ebXML meeting in November. Commerce One and a lot of other industry players recognize the need for global harmonization."

Like Commerce One, Sun is deeply involved in industry standards efforts, as are IBM, Microsoft and Oracle. Sun also has established a Java Community process whereby Sun and other companies, such as AOL, Ariba, IBM and Web Methods, jointly define standards.

XML-to-Java is one hot area because Java applications are already pervasive. According to Rick Schultz, Sun's product line manager for the Java 2 Platform, Standard Edition, Sun is working diligently on XML-to-Java integration.

"[Sun is] working on two technologies that help [XML-to-Java] integration," said Schmidt. "One is an XML parser that's part of the Java 2 platform, based on the SAX domain object model standard. The other is XML data binding that maps XML elements to Java objects."

Up in Redmond, Wash., Microsoft's BizTalk Initiative is no sleeping giant. In December 1999 Microsoft finalized its BizTalk Framework Document Specification 1.0, which means developers and ISVs can now develop BizTalk-compatible applications that can exchange XML documents. Like Sun, Microsoft has a committee, called the BizTalk Steering Committee, that includes other organizations, such as Ariba, Boeing, Commerce One and PeopleSoft. The BizTalk.org Web site comprises the new BizTalk Framework Document Specification, as well as schemas, reference materials, tools and sample applications.

In other news, Extensibility Inc. announced it will create a validated schema for Data-Channel Inc.'s Portal Markup Language 1.0 (which was accepted by the OASIS group as a standard markup language for content display and management). Bristol Technology Inc. introduced eXactML that allows C++ applications to speak XML by generating object-oriented interfaces for reading and writing valid XML content based on any DTD or schema. SoftQuad Software Inc. released XmetaL 1.2, a free upgrade of its XML authoring solution. And finally, Merant International Inc. introduced DataDirect Connect for XML, which integrates XML data across existing applications so developers don't have to rewrite them. ∎

SHOW PREVIEW: EMBEDDED SYSTEMS CONFERENCE EAST

Connected appliance market grows Chicago 2000 show

A torrent seems to be running through the embedded systems industry; a mighty river that threatens to overrun the conventional PC market and become the market for intelligent consumer devices.

Projected attendance figures for the 11th annual Embedded Systems Conference back that up, according to figures released by Miller Freeman Inc., producers of the event. Roughly 3,950 attendees, up from 2,872 attending last year's show,

are expected to view the wares of the 175 exhibitors at the conference.

The computer industry is on the verge of a giant shift—brought about by the Internet—that will return applications and data to centralized storage and equip consumer devices to access that data.

Such was certainly the sentiment expressed by Bob Tennant, marketing manager for the Java 2 Micro Edition at Sun Microsystems Inc., following

the product's recent launch.

With the migration of data away from the safety of its local data store and back to central storage, a new awareness of security comes to the fore. Addressing the issue with a keynote speech on Tuesday at 10:30 a.m. will be Clifford Stoll, whose "Stalking the Wily Hacker" presentation will describe the techniques many hackers use to break into computer systems, as well as offer some methods to protect against them.

Stoll is author of the best-selling book "The Cuckoo's Egg," which chronicles his one-year chase of a German computer programmer and spy who broke into the University of California, Berkeley computer systems.

The conference will also features a special guest lecture from James Rumbaugh, lead author of "UML Reference Manual," on the topic of building real-time embedded sys-

tems with the Unified Modeling Language.

Among new product announcements, Wind River Systems Inc., which is in the process of acquiring Integrated Systems Inc., will unveil its plans to integrate ISI's products and services—including DIAB-SDS, Doctor Design and Take 5 products—into a new, stronger Wind River. The company's flagship product is Vx-Works, an embedded real-time operating system used in most of today's network transport devices. (See story, page 19.)

MetaWare Inc. will be unveiling a new release of its ARM tool set. The product will include full support for the ARM Thumb and StrongARM processors, as well as offer StrongARM-specific optimizations, according to Michael Ham, spokesman for MetaWare.

Other product improvements will include optimized single precision floating point libraries, support for Architecture Version 5 and the ARM 9E DSP instruction set. ∎

WILL MICROSOFT HAVE ANOTHER DO-LITTLE YEAR?

SD TIMES

WINWATCH

OLIVER RIST

It's still early in this last year of the millennium (or the first year of the next, depending on your viewpoint), and gauging Microsoft's intentions toward the development community is still tricky. Not only has there been little tangible action, but very little has even been announced.

Asking around, some programmers feel that Microsoft did little in 1999 in terms of new technology releases, instead preferring to stay its course with incremental releases of existing products. A shock came at year's end when it was rumored that Redmond would be abandoning the Java platform. Microsoft quickly fired off a press release, however, stating that it had no plans to abandon Java, though it was in the process of evaluating the technology. "We stand behind the innovations first surfaced in Visual J++ and want to see them continue," says a statement on its developer Web site signed by "The Visual J++ Team," adding, "Unfortunately, there is a cloud of doubt over the industry's ability to innovate and advance Java long term."

Right now, we expect that the warmest development morsels on Microsoft's plate include programming for wireless connectivity, palm app development and XML—these are all outside of the obvious need for Windows 2000 development. As I write this, Microsoft has made a few important announcements—most of them defensive—in its XML development strategy that make this a good topic of discussion.

Some background: Redmond had suffered loads of compatibility criticisms in its older XML Parser for Java. Microsoft then released a new XML resource in Internet Explorer (IE) version 5 called msxml.dll, but this parser had problems as well, notably with its default display tendencies. In its defense, Microsoft published an article online in response to an in-depth compatibility test of IE 5's XML support conducted by a third party using the OASIS test suite. The article basically stated that most of these incompatibilities were due to msxml.dll supporting a number of other standards in addition to those used in OASIS, including namespaces and the W3C DOM.

Microsoft quickly followed this up by pointing to an even newer parser that's slated to ship with Windows 2000 but can also be had in the IE 5.01 release right now. Though this version of msxml.dll is described by Redmond as being little more than a service pack, it does offer real improvements in scaling—especially in multiprocessor scenarios—and reliability.

Is that all? Heck, no. In mid-December 1999, Microsoft announced that it would issue a technology preview of yet another XML parser in mid-January. This one was billed as incorporating all the latest W3C XML standards, including XSLT, XPath and schema caching. Microsoft said it even went to the trouble of ensuring that this parser would not install over developers' existing parsers, but only next to them. That way, programmers could create applications based on the new parser without sacrificing support for legacy XML applications.

In addition, Microsoft made use of XML on its own when it submitted its draft of the Simple Object Access Protocol 1.0 to the IETF in early December 1999. SOAP uses XML to access network objects over the Web, and while it prefers that these be built using Redmond's own DCOM, it's compatible with Java or CORBA-based objects as well.

That's where we are now, although Microsoft has promised much more with its upcoming release of Windows DNA 2000. Aside from SOAP, Microsoft intends to make XML pervasive throughout Windows 2000, add deep support for it within SQL 7.0, and even add an XML integration server to its BackOffice suite code-named Babylon for the present.

So the bottom-line word on XML from Microsoft is…wait. Redmond is obviously committed to owning a large chunk of market share in XML, but it seems to have tied much of its hopes in this regard to Windows 2000. That sounds good on paper, but its immediate penetration into the desktop is a pipe dream. The operating system is too complex and different from Microsoft's previous Windows for that deployment strategy to work. Most companies are looking to deploy it as a server first, with desktop penetration occurring only as early as 2001 and often as late as 2002.

For companies looking to leverage XML technology in applications now, that timetable is an eternity. Admittedly, it may take developers 10 or more months to build viable Windows 2000 XML-based applications, at which time desktop operating system penetration should have increased, but that still leaves all of last year's work to consider. Overall, Microsoft has left a gaping hole in its present XML support, and is sadly lacking even in that which it intends to provide in Windows 2000. We'll see if third-party vendors or the open-source community eats its lunch in the meantime. ∎

Oliver Rist is technical director of Grand Central Network, an Internet consulting company. He can be reached at orist@ grand-central.net.

XML FOR MANAGERS, NOT FOR DUMMIES

Every year has its favored buzzword technology, and we've all watched the software development field embrace (and sometimes discard) the special of the day. Sometimes those are concepts like object-oriented programming, component development, use cases, expert systems, unified modeling language or computer-aided software engineering. Less frequently they're specific languages, such as C++, Modula-2, Eiffel, Pascal or Java.

The Extensible Markup Language, or XML, can be thought of as bridging the conceptual and linguistic camps. Yes, it's a specific language, but it's not a programming language; it's a data description language. As such, the details of the language itself are deceptively irrelevant. It's the fact that the language exists at all, as a standard for the spontaneous interchange of arbitrary data, that makes XML supremely important. But that dual personality also can make XML difficult to understand. Isn't it just a different form of HTML? Isn't it just a watered-down version of the bloated SGML, the Standard Generalized Markup Language?

The short answer, of course, is "yes and no." The longer answer is "go read a book"—in this case, the aptly named "XML: A Manager's Guide," written by Kevin Dick.

You may recall David Taylor's excellent "Object Technology: A Manager's Guide," recently revised into a second edition. Taylor's book provided an overview of object-oriented development, which was sometimes a bit too simplistic for my taste, but it's still the best non-code-dripping book I've seen on that subject. Dick's XML book follows the same breezy formula, although it goes into more real-world depth than its decade-old predecessor.

BEGIN IN THE BEGINNING

Dick begins in an appropriate place: discussing the data-delivery and data-exchange problems that enterprises and developers currently face. As he appropriately says, "For years, enterprises have searched for a technology that would help them synthesize data from different databases into different packages, depending on the needs of the particular user." That technology? If you said XML…well, you'd be half right. The real answer is metadata, which is data *about* data. XML is a language for defining and encapsulating metadata, along with the data itself.

Want some examples? The number 2125553212 is just a number, but with metadata we learn it's a certain company's fax number. The number 16.125 could be the per-piece price of 80-ohm 200-volt resistors, the IPO price of a new Internet start-up, or the change in share price or the size that a typeface should be displayed on a Web page. From casual context, humans can infer the metadata, and understand what the data means. Computers can't do so. Hence, the need for a standard for defining metadata for software to understand: XML.

The second chapter in "XML: A Manager's Guide" discusses the basics of XML—what it looks like, and so on. Frankly, without a clear benefit, readers may get bogged down in an avalanche of Document Type Definitions, tags, elements and attributes. I suggest you jump instead to chapters 6 and 7, which introduce sample business XML applications for internal enterprise use and for conducting electronic business, respectively. This is the part of Dick's book that provides the "aha!" of understanding, and which will couple XML to your business-focused thinking gears. Many of the details will seem hazy—but you'll see how everything ties together.

JUMP BACK TO THE MIDDLE

Once you've gone through the examples, *then* jump back to chapters 2 and 3, to pick up the details of basic XML technology, as well as several key related standards that round out the XML spec, such as XML Style Sheets, or XSL, which define the presentation of XML data in an HTML browser; Namespaces, which allow the scope of metadata to be restricted to only relevant business domains; and XLink, the XML Linking Language, which provides hypertext features to XML metadata.

That's only the foundation. Without tools and processes, standards aren't of much use to enterprise developers. Chapter 4 provides a brief overview of the generic types of XML tools on the market, such as parsers or indexing tools. The tools it discusses are very low level—there's no discussion of the pros and cons of native XML databases or of the use of XML application servers as middleware in *n*-tier development, for example. Ahh, well, that's why we have second editions—and considering the pace of XML's evolution, I hope one is forthcoming within a year or two.

Chapter 5, which delves into the process of using XML in an enterprise context, is unfortunately light on specifics. It's true, as Dick says, that XML applications introduce change into an organization. Dick breaks XML applications into three categories—those for exchanging information between people, between people and applications, and primarily between applications—but, in my opinion, he doesn't sufficiently tie those into the real world or provide guidance for integrating XML into the development cycle.

Despite the weakness in those two chapters, "XML: A Manager's Guide" remains the most readable and accessible book I've found for a busy reader who just needs to "get it" quickly. Strongly recommended. ∎

"XML: A Manager's Guide." Kevin Dick. Addison Wesley Longman, 2000. Trade paper, 185 pages, $29.95.

Alan Zeichick is editor-in-chief of SD Times.

LATEST ISN'T ALWAYS GREATEST

The more time I spend browsing various Web sites, the angrier I get with those developers who take liberty with the amount of software I need to view their pages and navigate their site. I realize that developers want to stay on top of what is cool and unusual and eye-catching and create a site that is visually appealing, engaging and all that. But do they realize that your average member of the browsing public doesn't care at all about these things?

When the Web was first getting started, I used to have plenty of time to surf recreationally. And even up to a few years ago, I still had my favorite sites that I would check in on every now and then. But who has the time anymore? These days, I just want to get somewhere, get the straight dope and get on with my day. I don't have to look around anymore.

Anything else that gets in the way on a Web site is just an annoyance and a distraction. And I am sure that I am not alone in this opinion. The real issue for me is the growing trend toward encoding navigation links inside Macromedia Inc.'s Flash animations, or using other graphical means to provide the navigation links for your site. Not only are these bad Web design tactics, but they also can create a certain anti-user effect that ultimately does more harm than good.

Site navigation should be a simple thing, really: a few text links on the side or top of each page to help you get around the site. The goal here is to help someone who has never been to your site figure out where to go and how to get there in a hurry. So tell me how coding these links into some huge graphical monstrosity is a good idea? All you do here is create another obstacle on your site that browsers have to find their way around.

Plus, encoded navigation links make a statement that you want your browsers to have a certain set of software to view your site, and also to have the latest versions of said software as well.

Perhaps the most obvious mistake is Microsoft Corp.'s Web site. Here is an exercise: Install Windows NT version 4 on a new machine. This version comes with Internet Explorer version 2. Now bring up IE and connect to www.microsoft.com—you can't see anything, not even the page that will tell you how to download the latest version of IE. Something is wrong with that picture. How hard would it be for Microsoft to fix this? About 10 minutes of one person's time.

The Microsoft case is a good one because its corporate culture is to have the latest software version of everything, and so the company assumes that all of its customers will do the same. Unfortunately, there are plenty of other places like Microsoft.

While we all can agree that the Web has become firmly entrenched into popular culture, that doesn't mean that most of us are what I call professional software upgraders. These are the people who have to have the latest version of everything running on their desktops. The reason I call them professionals is that doing upgrades is a full-time job. Qualifications for this job include having a reasonably fast Internet connection (to make all these downloads speedy) and the insatiable curiosity that comes with knowing that somewhere out there in cybersoftware is some new code just waiting for you to try it out.

Sure, there are a few of us who claim to upgrade to the latest version of some portion of the software tools we use on a daily basis, but most of us have real work to do and are happy with running older versions of our software, thank you very much. Indeed, most users still lag far behind in terms of browser version and various supporting plug-ins and enhancements when they come a-knocking on your cyberdoorstep.

So don't assume that I am running version 5 of IE, or that I have downloaded Flash, or that I have even turned on graphics in my browser. Take a minimalist approach to your Web site, and keep it mean, lean and clean. You can design a great site and still have simple text navigation links and plain backgrounds. ∎

David Strom is president of David Strom Inc. and editor of the Web Informant *newsletter. Reach him at david@strom.com.*

eSpeed.

BALKIN' AT BALKAN JAVA

There is little doubt that the emerging model for server-side enterprise computing is based on Java objects riding CORBA pipes. This model is being deployed more and more, and its adoption should increase now that Sun Microsystems Inc. has released the enterprise edition of Java 2 (J2EE). CORBA is the principal product of the Object Management Group, or OMG, the brainchild of Christopher Stone, now head of marketing at Novell Inc. Stone recognized earlier than most people the need for an ORB that was supported by all leading vendors. From this vision arose the OMG, to which everyone except Microsoft Corp. has subscribed. (And almost certainly Microsoft will have to support CORBA eventually.) The multivendor support for CORBA has been critical to its success and, especially, its development. The CORBA specification is the result of deliberation and consensus.

Contrast this situation with Java. Late last year, Sun withdrew from its self-initiated standards application for Java. You will recall this effort began with a petition to the International Standards Organization, which was rejected on the basis that

SD TIMES
MIDDLEWARE WATCH
ANDREW BINSTOCK

Sun controlled Java with too tight a hand. Sun next approached the European consortium, European Computer Manufacturers Association, to see whether it would bless Java as a standard just as the group had done with JavaScript. ECMA said "nuts," and Sun limped home mumbling something about a dispute over the Java trademark.

The machinations Sun went through were not intended to do what Sun ostensibly wanted. The company knew before it began the process that no specification owned by one company could garner standards approval—even Microsoft has not been able to turn that trick. The purpose of pursuing standards certification was marketing. To maintain the appearance of good faith, Sun had to go through the motions.

Sun is no stranger to this process. Unix users will undoubtedly recall Sun's central role in splintering the Unix market. Its aggressive posture and willingness to do whatever it took to get some small advantage on its competitors made Sun a poor partner in the community. Sun played the role of Microsoft: the bully who wouldn't play ball and wouldn't adopt standards unless they were its own.

Sun's view of Java squares with this world view. Sun knew from the start that its control of Java would scotch any standards approval. And that's the way the company wants things: It will retain control of Java.

WHAT NOW, THEN?

To remain a key server-side player in enterprise computing, Java must run the same on all servers. And for this to be so, all vendor Java Virtual Machines (JVMs) and run-time environments must run the same. Close to the same just won't do. We all recall how poorly "pretty close" worked out when Java ran on desktops. Similar differences in implementation would kill Java on the server. Nobody could accept that much error. One can argue that those differences did in fact kill Java on the desktop. This may be a bit extreme as an assessment, but it is certainly not far-fetched.

Interestingly, the key to how the standardization process can be solved rests with IBM Corp., not Sun. IBM is the world's largest consumer of Java by far. Equally well-established, though, is the company's dislike for how Sun has run the Java program: the excessive licensing fees, the lack of standardization, the repackaging of partner contributions as Sun's own products—all these aspects have roiled IBM.

Sun needs to nip this problem quick-

ly. IBM and Hewlett-Packard Co. have already announced their intention to consider non-Sun versions of Java. The industry has learned the lessons of Unix and will not allow the balkanization of Java. The language will die out if this comes to pass.

A workable solution might come from a surprising corner: the open-source movement. If, for example, IBM and HP were to publish a reference implementation of their JVM with complete source code and with source code for the classes, beans and tools, this could serve as a new standard. (Sun has published the source code for portions of the Java Development Kit, but not with the intent that this code be used as a reference platform. Code use is restricted.) Backward compatibility with Enterprise JavaBeans and J2EE implementations would need to be assured. Then, the source code version could serve as the new reference model for Java. This very approach—an agreed reference code base—has prevented the balkanization of Linux, which, you will note, is also not a certified standard.

Either way Sun needs to be very careful about how it proceeds from here. ∎

Andrew Binstock is principal analyst at Pacific Data Works LLC. Reach him at abinstock@pacificdataworks.com.

THE SUN ALSO SETS

Poor Scott McNealy. A year ago, the chairman of Sun Microsystems was riding high as leader of the software industry's Anybody-But-Microsoft coalition. As recently as last November's Comdex trade show, McNealy was in high demand as a keynoter. Outside the Las Vegas Convention Center, a five-story picture of McNealy was draped over a parking garage, along with a provocative legend promoting his presentation: "Scott McNealy doesn't want your money. Find out why StarOffice is free."

These should be great days for McNealy and Sun. Microsoft has been forced to acknowledge the possibility that it will be broken up into separate companies. Bill Gates has stepped down as CEO. Pundits are projecting little demand for Windows 2000.

It's everything Sun wished for. But all of that seems like a long time ago now—back when it seemed inevitable that when Microsoft's star set, Sun's would rise.

What a difference a few months can make. Since Comdex, Sun has made one misstep after another, alienating the developer community and fumbling away its leadership role.

Sun's most recent round of shooting itself in the foot began with its withdrawal from ECMA's international standardization project for Java.

Sun invented Java and has main-

tained control over the language since introducing it to the world in 1995. Other companies that sell implementations of the language can't call them "Java" (that's why they're called "JBuilder," "Visual J++," and similar names) and Sun says they must maintain compatibility with Sun's reference implementation of the language. The compatibility clause of the licensing requirement is the source of Sun's ongoing legal battle with Microsoft, which has allegedly sought to compromise compatibility with the Sun "standard" in favor of making the language work better with other Microsoft technologies.

Sun has voluntarily made the Java specification open and cooperated with standards bodies. But late last year it declined to provide documentation for the Java 2 specification to ECMA—an international standardization body based in Geneva—citing concern over ECMA's lack of sufficient copyright protection for the documents. A Dec. 1, 1999, deadline came and went; a week later, Sun acknowledged that it had withdrawn from the standardization effort.

Other publishers of Java tools, notably IBM, are still working with ECMA. So we have an odd split in the Java world. Some implementations are true to the Sun standard and the "Java 2 Enterprise Edition" brand name. Oth-

SD TIMES
OPEN SOURCE
J.D. HILDEBRAND

ers will comply with a vendor-neutral international standard. By withdrawing from the standard process, Sun has imposed a tough choice on other vendors and on Java programmers—for no good reason. And it has positioned its own version of Java as a nonstandard, proprietary, niche implementation. Bang! There go a few toes.

Sun suffered a second self-inflicted gunshot wound to the foot by ungraciously failing to acknowledge the contributions of an open-source workgroup to the Linux port of Java 2.

The Blackdown group is a cadre of Linux programmers that has sought to bridge the gap between the open-source world and Sun's commercial Java operation. Operating under Sun's Community Process program, the group gained access to Sun Java code and made it work on the Linux platform. Under terms of the license, Sun was free to incorporate Blackdown's code in future commercial releases—which it did. Sun's Java 2 Platform for Linux is based partially on work done by Blackdown. But Sun made no mention of Blackdown's contributions…until the Linux community cried foul and Sun was forced to apologize.

Sun apologized for its bad manners but not for its Community Process, which allows it to assume ownership of customer enhancements to Java, incorporate them in commercial products, and sell them.

DESPERATE MEASURES

Painted into an anti-standard corner and viewed with suspicion by the open-source community, under attack from Penguinistas and Microsoft alike, Sun came up with a perfect response. It would release a new version of its Unix operating system, Solaris 8, under an open-source license. *That* would get people's attention!

And so, on Jan. 26, Sun had a big party in New York and launched Solaris 8. The operating system is free if you download it or $75 on CD; Sun has announced that the source code will be available by the end of April.

But, as per usual Sun strategy, nothing is completely free. There are significant restrictions on the use of Solaris 8. And no one at Sun will say "open source." Solaris 8 is still proprietary, owned and controlled by Sun.

You have to sympathize with Sun and with poor Scott McNealy. Sun is caught in a squeeze between Microsoft and Linus Torvalds' rapidly growing horde of Linux hackers. To prevail—to survive—McNealy must come up with new thinking. He must craft a bold new approach to the business of providing languages and operating systems.

If he's smart, he'll do exactly what IBM has done. But that's the subject of a future column. ∎

J.D. Hildebrand is an award-winning writer and magazine editor based in Nashua, N.H. Reach him at jdh@ sdtimes.com.

LINUX: NOT JUST FOR THE RELIGIOUS ANYMORE

To the zealots of open source, Linux represents the best of what's good about computer development. They believe it can restore the industry to the lofty place it held in their minds. It's not about money; it's about the sanctity of knowledge and freedom of information. (Well, stock options are nice, too.)

Financial folks tend to be more pragmatic. Lofty ideals are fine, so long as money can be made off of them.

SD TIMES

MONEYWATCH

DAVID RUBINSTEIN

So far, the two beliefs have not been mutually exclusive. Who can forget the mind-blowing opening day of trading for VA Linux Systems Inc., which installs the operating system on its machines? The company's stock price climbed a ridiculous 700 percent in a day. And then there is Red Hat Inc., which packages and distributes Linux and also enjoyed a huge increase in stock price since its IPO.

Well, Red Hat has announced another offering of its stock. It is expected the company will make available 2.75 million shares and certain stockholders will ante up an additional 1.25 million shares. And again, the folks in the financial community are sitting up and taking notice, bracing for what could be another avalanche of investors who believe the IPO run-up was not a one-time thing.

Analysts, and the dollars, tell us that professionals in the investment community are taking Linux very seriously.

All of this raises the stakes and becomes a huge competitive issue to that dominant purveyor of the desktop operating system world, Microsoft. While Mr. Gates certainly is set for life (and the next life, if there is one), you know his company will feel the pinch as more money and more players move into the open space.

Certainly, some of the biggest already are getting in. IBM Corp. recently announced that after two years of dipping its toe into open waters, its network computers will run Linux. How's that for mainstream? And Sun Microsystems Inc., Computer Associates International Inc. and Dell Computer Corp., among others, are jumping on board. So, if there was any question of light being thrown on this underground phenomenon, it has been answered.

Linux, as they say, has legs.

STREET SWEEPING

Caldera Systems Inc. recently announced that it has received $30 million in private equity financing from technology and investment leaders, including vendor money from Citrix, Novell, SCO and Sun, as well as venture money from Chicago Venture Partners and Egan-Managed Capital. Caldera will, of course, use the capital to accelerate the growth and acceptance of…you guessed it…Linux. "We take [this support] as an endorsement of the Linux industry as a whole and the open source movement in particular," said Ransom Love, Caldera's president and CEO.

"Sun's investment in Caldera is a testament to our support of open computing," said Jonathan Schwartz, vice president of Sun's Equity Investment Portfolio, his company's proprietary stance on Java notwithstanding.

TurboLinux Inc. has announced it closed $57 million in a second round of funding, including a large investment from Dell. As part of the deal, Turbo-Linux, which is competing with RedHat as a Linux distributor, also received funding from BEA, Citrix, Compaq, Inprise and Novell, among others.

M&A West, a company that develops, invests in and operates Internet-related companies, plans to establish a fund to pursue investment and development opportunities in…you guessed it…Linux. The company runs the Linux Funding Web site (www.linuxfunding.com) as a clearinghouse for Linux developers, investors and users of the technology. The site includes investment opportunities and industry news…Wave Technologies International Inc. has announced an agreement to acquire Sair Inc. in the hopes of taking a leading position in training and certification for, well, you know. Sair develops vendor-neutral Linux training materials.

And because there is more to the world than Linux, Integral has announced that it has secured a private placement totaling more than $40 million for development of its B-to-B e-commerce portal for capital markets…Rational Software Corp. intends to raise $250 million gross proceeds through a private offering of convertible subordinated notes. The company will use the money for working capital and the ubiquitous "other general corporate purposes."

SilverStream Software Inc. (NASDAQ: SSSW) announced that it had commenced a follow-on public offering of 2,200,000 shares of its common stock at a price of $114 per share. In the offering, 1,445,851 shares were offered by SilverStream and 754,149 shares were offered by certain stockholders. The underwriters have been granted an option to purchase 330,000 additional shares from SilverStream to cover over-allotments, if any. ∎

David Rubinstein is executive editor of SD Times.

PeopleSoft Shifts Tools to the Web

PeopleSoft Inc. recently announced delivery of its People-Tools 8 Internet architecture, which the company claims is the first server-based development platform delivered by a major enterprise application company.

PeopleTools 8 is designed to enable the rapid development, deployment and cost-effective management of PeopleSoft's next generation of e-business applications, allowing business-to-business transactions and collaboration via the Internet. It's available immediately with PeopleSoft Enterprise Performance Management 8, PeopleSoft's e-business intelligence solution.

"PeopleTools 8 represents a paradigm shift for PeopleSoft's technology," said Peter Gassner, vice president and general manager of the PeopleTools technology division. "PeopleSoft is the first major enterprise application vendor to move from a client/server tool set with Web capabilities to a development environment completely oriented to building Internet applications."

PeopleTools 8 offers application developers and customers a single, consistent architecture for Internet-based access and integration, lowering the costs of application devel-opment, deployment, maintenance and training.

PeopleTools 8's server-centric architecture allows access to PeopleSoft e-business applications through low bandwidth networks, including phone lines, from any platform supporting a Web browser, such as cell phones and Internet appliances, as well as Unix, Linux, Windows and Macintosh. PeopleTools 8's scalable architecture supports tens of thousands of concurrent users at multiple sites, and integrates leading LDAP-based directory server technologies to ensure secure access to PeopleSoft applications for e-business. These technologies authenticate users, authorize tasks within applications and encrypt transmitted data.

PeopleTools 8's Internet-based Enterprise Integration Points make cross-enterprise commerce and collaboration possible by linking PeopleSoft e-business applications to both internal and external third-party systems. PeopleTools 8 includes a suite of enterprise application integration tools such as application messaging, business components and business interlink. All of these tools are based on emerging Internet-based technology standards such as XML, HTTP and Java.

The integrated suite, which marks the second generation of PeopleSoft Enterprise Performance Management, includes new products such as Balanced Scorecard and Workforce Analytics, and new versions of Enterprise Warehouse and Activity Based Management. Several other components of Enterprise Performance Management 8 will become available throughout the first quarter of 2000, including several Web-based e-business intelligence workbenches for customer, workforce and financial analysis, and a new suite of Profitability Management applications for the financial services industry.

"As competition in the Internet economy continues its rapid increase, organizations must be able to leverage e-business solutions for more than transactions," said Mike Gioja, executive vice president of products and technology at PeopleSoft (www.peoplesoft.com). "With Enterprise Performance Management 8 and the new PeopleSoft Internet architecture, PeopleSoft is providing the tools for organizations to make better decisions about their customers, their employees and their finances." ∎

COMPUWARE

ual requirements," said Dirk Gorter, director of product management of Compuware's Uniface products.

FAILED MARRIAGE

A drama that began in July 1999 came to an end in late January, as Compuware's bid to acquire Viasoft Inc. unraveled. The tender offer had been extended several times, as the companies sought to overturn the U.S. Department of Justice's opposition to the acquisition.

On Jan. 21, the deal was off. "Compuware vigorously pursued all means to consummate the acquisition of Viasoft and has scrupulously observed its obligations under the merger agreement," said Thomas Costello Jr., Compuware's general counsel. "The litigation with the Department of Justice over Compuware's proposed acquisition of Viasoft has been enormously expensive and time-consuming for Compuware. Nevertheless, we aggressively pursued Justice Department approval of the transaction with Viasoft and carefully considered every reasonable settlement proposal. We were prepared to pursue this matter to trial."

However, according to Compuware, the company's officers had been advised that Viasoft's board of directors would not authorize a waiver of its right to terminate, and as Compuware couldn't be assured of the viability of the merger after the tender offer expired on Jan. 31, the offer was withdrawn.

"We are disappointed that the parties' various discussions were not successful in producing a settlement with the Department of Justice," said Viasoft Chairman Steven Whiteman. "The Board of Directors did not believe that continuing the litigation, with its inherent risks, substantial costs and potential irreparable damage to our business and relationships with customers, distributors and employees, was in the best interests of Viasoft shareholders."

BUT GOOD RESULTS

After the merger was cancelled, Compuware announced third-quarter financial results that showed revenue of $637.4 million, an increase of 47.2 percent, with net income increasing to $133.4 million. ∎

EXCELON

struck a deal with Ottawa-based The Object People (TOP). Under the terms of the deal, eXcelon will resell TOPLink, TOP's family of object/relational mapping products, together with eXcelon's Javlin server. The two companies have also established a joint engineering effort to further integrate the two products with future versions, and they are co-sponsoring development of a standard API for container-managed persistence in Enterprise JavaBeans (EJB).

"The focus of this alliance is on building pragmatic solutions for data-intensive e-commerce applications. Together, TOP-Link and Javlin provide a high-performance, middle-tier object cache that will enable EJB applications," said Mike Milinkovich, executive director of corporate and strategic alliances of The Object People (www.objectpeople.com).

Shortly after that agreement was announced, TOP updated TOPLink to version 2.5. New features include memory querying and unit of work conforming; transparent indirection support for collection mappings; optimistic locking policies for all, changed or specified fields; enhanced support for EJB entity beans and bean-managed persistence; nested table support for object-relational descriptors; automated stored procedure generation; integrity checking; and new native SQL support for Informix.

EXCELON: A NEW NAME FOR ODI

On Jan. 31, Object Design Inc. changed its name to eXcelon Corp. According to Robert Goldman, chairman, president and CEO, the move highlights the $62 million company's new commitment to electronic business and XML, with less of a focus on its Enterprise JavaBeans server, Javlin, and ObjectStore object-oriented database.

"The rapidly growing market for Internet business-to-business software represents a major opportunity for our company," said Goldman. "We've focused on efforts to provide customers with products and services that make business collaboration across the Internet more efficient, flexible, scalable and profitable."

The company's flagship will be the eXcelon B2B Integration Server, expected to be available by the end of the first half of the year, according to eXcelon's Alston. The Integration Server combines several stand-alone company products, such as the eXcelon Dynamic Application Platform 2.0 and eXcelon Stylus. The Dynamic Application Platform, currently known simply as eXcelon, is an integrated graphical development environment and application server for XML applications. Stylus is a tool for mapping XML data constructs to HTML page layouts.

As part of its shifted focus, eXcelon will be developing and selling vertical industry XML solutions, as well as increasing its emphasis on providing consulting services.

With the new name, the publicly traded company's NASDAQ ticker symbol changes as well, from ODIS to EXLN. The domain name www.excelon.com is already taken by Sterling, N.J.-based Thermoplastic Processes Inc., leaving eXcelon with the unwieldy www.exceloncorp.com. ∎

WATCHFIRE INTRODUCES NEW WEB APP TESTING TOOL
Macrobot generates, runs iterative test scripts

It's difficult to test any custom-written application, and Web-based software is no exception. WatchFire, a division of Tetranet Software Inc., has recently released Macrobot, a Web-application testing tool that features the ability to automatically generate its own iterative test scripts.

According to WatchFire (www.watchfire.com), Macrobot uses a spreadsheet-based metaphor for designing and managing test scripts, with user-supplied data providing the ability to test with different values for account names, order baskets, bank account transactions, credit card types, or other relevant variables. Macrobot does not require programming, but experienced developers can write their own test scripts in JavaScript. The package also allows test scripts to determine the presence and properties of specific page elements including forms, graphics, text and links.

Macrobot requires Windows 9x or NT, and Microsoft's Internet Explorer. The company states that while Netscape's Navigator is not supported in this initial release, Navigator support is under development. Expect to pay for the product's claimed ease of use, with a single user license priced at $2,995, and a 10-user license costing $19,995. Fortunately, the company offers a trial version and online documentation. ∎